

'It's Important to Know In Time'

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The Newspaper of the Industry

Air Conditioning & REFRIGERATION
Production Tools for Victory



Technical News
Governmental

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INDUSTRY ORDNANCE NUMBER

Industry Plays Important Role In War Effort

Experience In Making Precision Equipment Helps Armed Forces

DETROIT—Manufacturers comprising the refrigeration industry were a "natural" for war production because of their familiarity with close-tolerance precision machining. And they have done a stand-out job of armament making—many of them for two years or more.

Not only has the industry hung up a proud record of armament production, but it has contributed processes which have been adopted by many other types of manufacturers in the making of lethal weapons.

And, possibly even more important, the application of refrigeration itself to armament making in the last few months has helped boost the production rate of the entire nation to almost unbelievable totals.

This industry's manufacturers are turning out war machines ranging from the largest cargo-carrying airplanes in the world down to tiny, delicate controls and instruments which are the eyes and ears of planes and ships.

They are making machine guns, aircraft propellers, steam and Diesel engines, compressors and

(Concluded on Page 5, Column 1)

Replacement Part Tieup Threatens Los Angeles Dairies

LOS ANGELES—"Serious curtailment of Los Angeles County's milk supply may result from the inability of dairymen to obtain repair parts for milking and refrigeration equipment because of priority difficulties," stated the "Los Angeles Examiner" in a news story in its June 22 issue.

"This warning," continued the Los Angeles newspaper, "came yesterday from M. J. Wolfe, assistant farm advisor for the county, who disclosed that some dairies already have been without refrigeration for 10 days and the operators unable to secure replacement parts in spite of an A-3 priority."

"If the situation continues," Mr. Wolfe declared, "unquestionably the quantity of milk available for Los Angeles consumers will be affected. Uncooled milk will be degraded and put to commercial use. Properly handled, the same milk would be available for human consumption."

"Officials of the war board of the United States Dairymen's Association will demand of Washington, Mr. Wolfe said, that the necessary equipment for repairs be made available immediately."



UNITED WE STAND

White Heads Sales Of Par Compressors

DEFIANCE, Ohio—W. C. White has been appointed sales manager of the Lynch Mfg. Corp. here, manufacturer of "Par" commercial refrigeration units and air compressor equipment, reports M. H. Pendergast, general manager of the Lynch Mfg. Corp.

Mr. White succeeds W. C. Allen, former vice president and sales manager, who is retiring from the industry. Mr. Allen had been elected president of the Refrigeration Equipment Manufacturers Association at the recent annual meeting of the as-

(Concluded on Page 16, Column 5)

Locker Plants Get Priority Assistance

DES MOINES, Iowa—Through the efforts of the National Defense Committee of the National Frozen Food Locker Association special consideration is being given to applications for priority assistance for new refrigerated locker storage plants, and expansion of existing plant facilities, through the intervention of the Office of Agricultural War Relations in Washington, D. C.

This recognition was gained after Wayne Carver and Bryce Vollmar,

(Concluded on Page 9, Column 1)

This is the Industry Ordnance Number of Air Conditioning & Refrigeration News. Its purpose is to demonstrate how the refrigeration and air conditioning industry has taken up the challenge of producing special goods for the direct U. S. War Effort, in addition to refrigeration products both for the Armed Services and essential civilian needs. Main features are: A survey of what manufacturers in this industry are making for the direct War Effort (PAGE 20). A graphic presentation of how they have increased this effort in one year (PAGE 21).

A spot survey along similar lines for one industrial area (PAGE 13). The story of how one manufacturer is manufacturing both special refrigeration equipment, and out-of-his-line products for War (PAGE 4). The story of how one refrigerator cabinet plant converted machines and trained men for War work (PAGES 6 and 7).

Terhune Is Chairman Of Compressor Group

CHICAGO—E. A. Terhune of Servel, Inc., was elected chairman of the Standard Refrigeration Compressor Association at its meeting in Chicago, June 23.

C. P. Spalding of the General Refrigeration Division, Yates-American Machine Co. was elected vice chairman, and H. C. Morrison of the Curtis Refrigerating Machine Co. was elected treasurer.

Executive committee members include F. K. Smith of Tecumseh

(Concluded on Page 16, Column 5)

Wampler Is Elected Carrier President

NEW YORK CITY—Cloud Wampler, executive vice president of Carrier Corp., has been elected president, succeeding the late J. Irvine Lyle.

This action, taken by the board of directors, fills a vacancy left by the death of Mr. Lyle earlier this month.

At the same meeting, Edward T. Murphy, senior vice president of the corporation, and one of its founders, was elected a member of the board to succeed Mr. Lyle.

Mr. Wampler, who for many years resided in Chicago where he was identified with various business and civic enterprises, has been closely associated with Carrier Corp. since 1934 when he became a member of its board of directors. Subsequently he served as a member of the executive committee, and as chairman of the finance committee.

Prior to becoming executive vice president of Carrier, Mr. Wampler was president of Stern, Wampler & Co., Inc., of Chicago. He began his business career with the Harris Trust & Savings Bank of that city in 1916, and a year later entered the United States Army in which he served as a general staff officer, both in this country and abroad. After the war he returned to the Harris Bank and later entered the private banking business in Chicago.

(Concluded on Page 16, Column 5)

Price Ceilings In Effect on Service Work

Highest Price Charged In March Is Limit Set By Regulation

WASHINGTON, D. C.—Price Administrator Leon Henderson has transferred all consumer services connected with commodities—from shoe shining to the tuning of a church organ (and including the servicing of appliances)—from the General Maximum Price Regulation and placed them under a separate ceiling with special provisions to meet the distinct price control problems involved.

In Maximum Price Regulation No. 165—Consumer Service, which became effective Wednesday, July 1, the Price Administrator set the highest prices charged last March by each individual seller as a wartime ceiling over consumer services.

"Services to the ultimate consumer are a special problem in the field of price control," Mr. Henderson stated in promulgating the new order. "They differ from the retail sales of commodities and also from services

(Continued on Page 14, Column 1)

Some Service Men Are Deferred by Local Draft Boards

DETROIT—According to reports received by AIR CONDITIONING & REFRIGERATION NEWS, some Selective Service Boards have deferred refrigeration servicemen, where it has been demonstrated that the demands for refrigeration repair work of an essential nature was exceeding the available manpower.

In some cases, it was stated, the deferment was granted only upon the promise of the refrigeration service company to train, within the six months' deferment period, some man not eligible for the draft to take the exempted individual's place.

It has also been learned that some deferments of servicemen were obtained after an appeal had been made to the Selective Service Board of Appeal, which can recommend the case to the local Selective Service Board for reconsideration, this in almost every case meaning that a deferment will be granted.

Deferment of military service is granted only to a person who meets the following requirements:

1. He is engaged in an occupation the maintenance of which is essential to (a) the national health, safety,

(Concluded on Page 16, Column 4)

Questions and Answers On L-38 Order

Official questions and answers on the Refrigeration and Air Conditioning Limitation Order L-38 appear on Page 2 of this issue. These questions include a number asked by News' readers, the answers being prepared by officials of the Refrigeration and Air Conditioning branch of the War Production Board.

CORRECTION—

In Text of L-38 Order

Editor's Note: In paragraph (1) of section (c) of the L-38 order on commercial refrigeration and air conditioning as published in the June 29 issue of Air Conditioning & Refrigeration News appeared a typographical error. The word "unused" in line 10 of paragraph (1) was printed as "used."

The correct section follows:

(c) Prohibiting Sale of Refrigerating and Air Conditioning Equipment.

(1) Except to fill a Preferred Order, or as provided in paragraph (e) (2) hereof, no Producer, dealer or other authorized channel of distribution including a bottler of carbonated beverages and a manufacturer of ice cream for resale) of Refrigerating and Air Conditioning Equipment shall, after the effective date of this Order install any unused Refrigerating and Air Conditioning Equipment and no Producer, dealer or other authorized channel of distribution shall sell, lease, trade, lend, deliver, ship or transfer any such unused equipment except to other producers, dealers or other authorized channels of distribution for resale; and no person (with the exception of other producers, dealers or other authorized channels of distribution for resale) shall accept any sale, lease, trade, loan, delivery, shipment, transfer or installation of any unused Refrigerating and Air Conditioning Equipment.

Official Answers to Questions Simplify Interpretation of L-38 Order Covering Commercial Refrigeration & Air Conditioning

WASHINGTON, D. C.—The Air Conditioning and Commercial Refrigeration Branch, in response to numerous requests, has issued the following series of questions and answers on the operations of General Limitation Order L-38, which controls the production and distribution of air conditioning and commercial refrigeration equipment:

1. Q. The sale and installation of what unused refrigerating and air conditioning equipment may be made without first obtaining a preferred order?
 - A. A dealer or distributor, but not a producer, may sell or install the following types of equipment without first receiving a preference rating from the buyer, provided such equipment was in his inventory or in transit to him on June 15, 1942:
 1. Carbonated beverage dispensers.
 2. Bottled beverage coolers.
 3. Low temperature mechanical refrigerators having a capacity of less than 8 cubic feet.
 4. Self-contained room coolers, evaporative coolers and window-type air conditioners.
 5. Fountains.
 6. Florist boxes and display cases.
 7. Ice cream cabinets.

The sale of all other unused refrigeration and air conditioning equipment can be made only to fill a preferred order.

2. Q. What is meant by unused refrigeration and air conditioning equipment?
 - A. All such equipment which has never been sold and delivered to the ultimate consumer. This includes repair parts for such equipment, but the sale of such parts without a preference rating is permitted provided they are to be used in emergency repair service as defined in the order.

3. Q. What is meant by preferred order?
 - A. Any order for the account of designated governmental departments or bureaus; any order for a foreign country pursuant to the Lend-Lease Act; any order bearing a preference rating of A-9 or higher assigned specifically to the delivery of refrigerating and air conditioning equipment and designating the person to receive it; or any order to which has been assigned a preference rating by operations of Preference Rating Order No. P-126.
4. Q. What restrictions are placed on the production of refrigeration and air conditioning equipment by Limitation Order L-38 and Amendment No. 1 thereto?
 - A. In the period May 15 to June 30, 1942, a producer may manufacture or assemble that equipment for which he has unfilled preferred orders, or the number of items of such equipment delivered on preferred orders in the period April 1 to May 15, 1942, whichever is greater.

Amendment No. 1 provides that all producers may assemble any item of equipment other than those products listed in paragraph (e), from fabricated parts in their inventory as of May 15, 1942. This right expires June 30, 1942.

In the calendar quarter beginning July 1, 1942, a producer may manufacture or assemble that equipment for which he has unfilled preferred orders, or the number of items of such equipment on preferred orders in the past calendar quarter, whichever is greater.

5. Q. Does the order cover the sale of repair parts?
 - A. Yes, but any repair part may be sold without any preference rating if it is to be used in emergency repair service as defined in the order.
6. Q. What is the proper procedure to follow in obtaining a preference rating for refrigeration and air conditioning equipment?
 - A. The customer desiring to purchase such equipment must file Form PD-1A with the War Production Board, Washington, D. C., requesting a preference rating of A-9 or higher. The application will be denied unless it clearly appears that the equipment will be used for a purpose essential to the war effort or for an essential civilian need. For example, a rating will be granted for the preservation of food or to a testing laboratory where necessary but will not be granted to enable retail establishments or theaters to obtain air conditioning equipment. A buyer having a preference rating of A-9 or higher is free to buy such equipment as covered by the rating certificate, and the seller is free to sell and install such equipment.
7. Q. May a producer or a distributor who has a stock of refrigeration and air conditioning equipment sell such equipment to dealers?
 - A. Yes, except for the items listed in answer to question 1 above, but repair parts for all equipment may be sold by a producer or distributor to a dealer.
8. Q. Can the installation of commercial refrigeration equipment not pursuant to a preferred order be made where payment or partial payment had been made prior to the effective date of Limitation Order L-38, but the installation had not been started?
 - A. No. A preference rating of A-9 or higher is needed to make the installation.
9. Q. Where an installation had been started prior to the issuance of Limitation Order L-38, may it be completed without obtaining a preference rating of A-9 or higher?
 - A. No. A rating of A-9 or higher is necessary to complete the installation.
10. Q. Does application have to be made on Form PD-1A for the right to buy any commercial refrigeration equipment no matter how small the order may be?
 - A. Yes.
11. Q. Where a manufacturer had an order for equipment bearing a preference rating of A-9 prior to the issuance of Limitation Order L-38, may he install such equipment?
 - A. Yes.
12. Q. May an unfilled order on hand as of May 15, 1942, bearing a rating lower than A-9, be installed without violating the terms of the order?
 - A. No. Before the installation can be made, a preference rating of A-9 or higher must be obtained.
13. Q. May ice cream cabinets owned by an ice cream manufacturer be installed without obtaining a preferred order?
 - A. Yes, provided they were in the inventory of such manufacturer or in transit to him on June 18, 1942.
14. Q. May bottled beverage coolers and dispensers owned by a bottler of carbonated beverages be installed without first obtaining a preferred order?
 - A. Yes, provided they were in the inventory of such bottler or in transit to him on June 18, 1942.
15. Q. May air conditioning units of less than 2 hp. be rented by a dealer without first obtaining a preferred order?
 - A. Yes, provided they were in the inventory of such dealer or in transit to him on June 18, 1942.
16. Q. Does equipment installed "on trial" prior to May 15, 1942, and still "on trial" on that date come within the provisions of the order?
 - A. Yes, for the reason that the sale had not been completed prior to that date, which was the effective date of the order.

(Concluded on Page 3, Column 1)

The Bush Bulletin

Mfg. Co. THE BULLETIN WITHOUT THE "BULL"

EVER HEAR OF "CREATIVE SELLING"? IT'S THE KIND OF SELLING WE ALL HAVE TO DO TODAY...IT'S THE KIND OF SELLING THAT UNCOVERS NEEDS BEFORE THE BUYER KNOWS ABOUT THEM.

TODAY WE'RE SELLING TO FOLKS WHO NEVER BOUGHT BEFORE...WHO OFTEN KNOW SO LITTLE ABOUT OUR PRODUCTS THAT THE NEED FOR THEM HAS TO BE POINTED OUT. BUT THEY HAVE THE NEED... AND THEY HAVE THE PRIORITY RATINGS TO PROVE IT. WHO ARE THEY? THEY'RE THE STEEL MILLS, HOSPITALS, WAREHOUSES AND WAR PLANTS RIGHT IN YOUR TERRITORY!

PENGUIN PETE

BUSH MFG. CO.

★ Commercial Cooling Units ★

HARTFORD, CONN. • 610 N. OAKLEY BLVD., CHICAGO, ILL.



Questions & Answers on L-38

(Concluded from Page 2, Column 5)

17. Q. May refrigeration and air conditioning equipment held by a dealer for display purposes be sold without obtaining a preferred order?
- A. No, as the equipment is considered as "unused" as defined by the order.
18. Q. May a manufacturer obtain additional material with which to make refrigeration and air conditioning equipment.
- A. Yes, by filing Form PD-25A, but he must stay within the production limitations of the order.
19. Q. Where a buyer of refrigeration or air conditioning equipment has a rating of A-9 or higher, which is not sufficient to obtain the needed equipment, what is the next move of the buyer?
- A. The buyer with such a rating should explore the markets for a seller who can fill his order. If unsuccessful, a new application should be filed explaining circumstances.
20. Q. Do evaporative coolers come within the scope of Limitation Order L-38?
- A. Yes.
21. Q. Are stone crock water coolers, where the temperature is lowered by the evaporation of moisture passing through the stone or by the immersion of ice in the contents, covered by L-38?

- A. Yes.
22. Q. Is the rental of water coolers covered by Limitation Order L-38?
- A. Yes.
23. Q. Where the ultimate consumer had on hand all of the products and installation parts necessary to the installation, prior to the effective date of the order, and for which he had been billed, is it permissible for him to complete the installation?
- A. Yes.
24. Q. If an installation was in progress on the effective date of the order but additional installations were required after the effective date, may a producer supply the additional equipment and supply labor to complete the installation in the absence of a preferred order?
- A. No. Form PD-1A must be filed and a preference rating of A-9 or higher obtained before the installation may be completed.
25. Q. May an ultimate consumer accept delivery of a shipment of refrigeration or air conditioning equipment in transit to him on the effective date of the order?
- A. Yes. However, before it can be installed, a preference rating of A-9 or higher must be obtained.
26. Q. Do provisions of General Limitation Order L-38 apply to materials and equipment produced for export under the terms of an exporting license?
- A. Yes. The exporter must file Form PD-1A.

Reprints of L-38 Order as Amended

Business News Publishing Co., publishers of Air Conditioning & Refrigeration News, has published a reprint of the L-38 order on commercial refrigeration and air conditioning as amended.

Other pertinent matter regarding the order is included in the reprint.

Copies of the reprint are available at a cost of 20 cents each. Please send remittance with order to Business News Publishing Co., 5229 Cass Ave., Detroit, Mich.



Text of WPB Order Covering Hand Service Tools

Part 1262—Hand Service Tools. (General Preference Order E-6). The fulfillment of requirements for the defense of the United States has created a shortage in the supply of hand service tools and of alloy steel used in their manufacture, for defense, for private account, and for export; and the following order is deemed necessary and appropriate in the public interest and to promote the national defense:

§ 1262.1 General Preference Order E-6 —(a) Definitions. For the purposes of this order:

(1) "Producer" means any individual, partnership, association, business trust, corporation, or any organized group of persons whether incorporated or not, engaged in the production of hand service tools.

(2) "Hand service tool" means any tool listed on Exhibit A hereto attached which is used by hand, and is made of iron or steel or has a principal component part made of iron or steel.

(b) Restrictions on use of steel for the manufacture of hand service tools. No producer shall manufacture any hand service tool out of any alloy steels except those which are in the series specified in Exhibit B attached to this order. Provided, however, That any alloy steel of a series which is not listed on Exhibit B but which has been received by the producer prior to the issuance date of this order may be used to manufacture hand service tools.

(c) Restrictions on sales of hand service tools. No producer shall make delivery of any hand service tool except pursuant to a purchase order bearing a preference rating of A-10 or higher. Provided, however, That any producer who, prior to the issuance date of this order, sold hand service tools through branches and branch stores directly owned and operated by such producer to persons purchasing the same for their own use may continue to sell such tools through such branches and branch stores to such purchasers without a preference rating, subject to the provisions of Priorities Regulations No. 1 requiring the acceptance and filling of defense orders.

(f) Appeal. Any person affected by this order who considers that compliance therewith would work an exceptional and unreasonable hardship upon him, or that it would result in a degree of unemployment which would be unreasonably disproportionate compared with the amount of material conserved, or that compliance with this order would disrupt or impair a program of conversion from non-defense to defense work, may appeal to the Director of Industry Operations by addressing a letter to the War Production Board, Washington, D. C., Ref.: E-6, setting forth the pertinent facts and the reasons he considers he is entitled to relief. The Director of Industry Operations may thereupon take such action as he deems appropriate.

(g) Communications to War Production Board. All reports required to be filed hereunder, and all communications concerning this order shall, unless otherwise directed, be addressed to: War Production Board, Washington, D. C. Ref.: E-6.

J. S. KNOWLSON,
Director of Industry Operations.

EXHIBIT A TO GENERAL PREFERENCE ORDER E-6

Chisels, all types.
Hammers, all types.
Metal cutting snips and shears.
Pliers, all types.
Punches, all types.
Screw drivers, all types.
Wrenches, all types.
No. 116-2.

EXHIBIT B TO GENERAL PREFERENCE ORDER E-6

SAE 1300 Series.
SAE 4000 Series.
NE 8000 Series.
NE 8100 Series.
NE 8200 Series.
NE 8300 Series.
NE 8400 Series.
SAE 9200 Series.

Have You Seen Our New Models, Mr. Hitler?



WE are getting them ready now, Mr. Hitler—the proudest beauties ever destined to leave a Kelvinator assembly line.

... Mammoth Vought-Sikorsky Flying Boats that can be flown right to your doorstep in Berlin for a demonstration, or to your friends in Tokyo and Rome.

... Powerful Pratt and Whitney engines that will take our pursuit ships up higher—and faster—than those of yours or any other country's.

... Smooth-humming Hamilton Standard Variable-Pitch Propellers that are already giving flight to the Jap-blasting airmen of the United Nations.

... Rugged, all-purpose combat trailers, binoculars and other important war matériel that cannot be disclosed at the present.

All these great instruments of war are now—or soon will be—rolling from Nash-Kelvinator production lines in several plants—lines that made last year's products of peace.

Yes, Mr. Hitler, this, our greatest production job, is being done especially for you and your murderous gang.

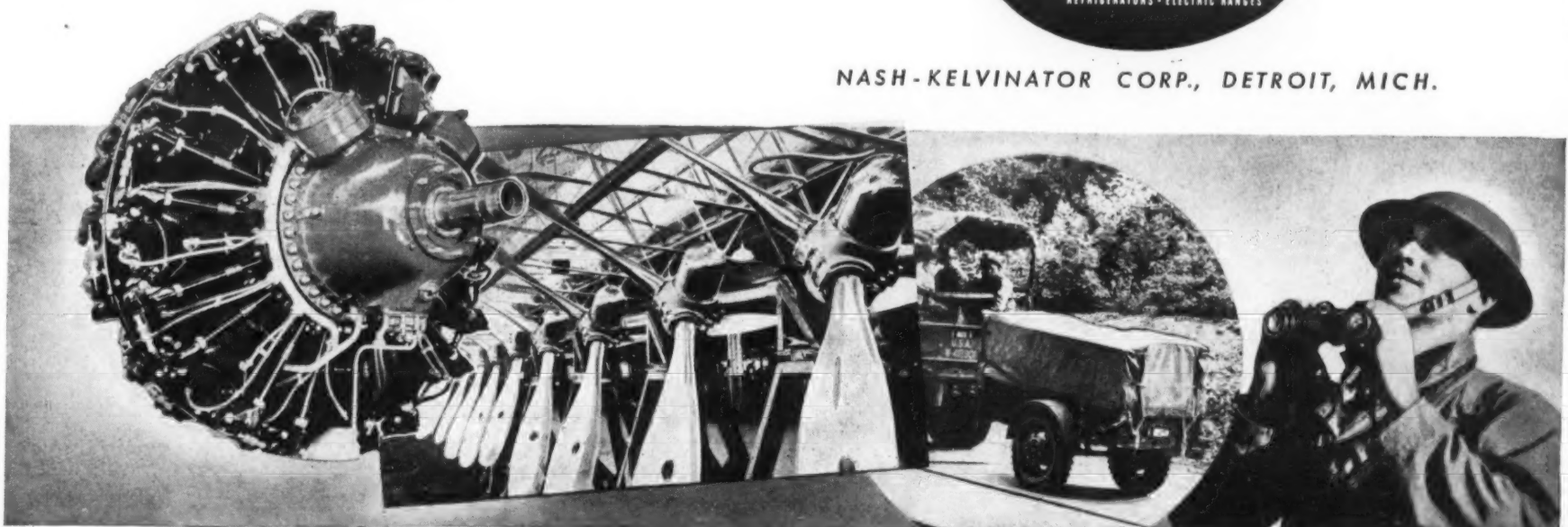
* * *

Appliance dealers, we know, welcome Nash-Kelvinator's current and future production. And agree there can be no other production until the last Swastika and the Rising Sun are shot out of the skies.

But some day soon we will again join hands in peacetime enterprise. Then . . . when Victory is ours . . . retailers can again depend on Kelvinator for outstanding appliances, new merchandising plans, and sound "retail-minded" policies that will give an even greater meaning to our peacetime battle cry:



NASH-KELVINATOR CORP., DETROIT, MICH.



Weber Shows How Manufacturer Can Build Refrigerators for War Needs and Take on Contracts for Special Types of War Goods

LOS ANGELES—One of the most striking demonstrations of how a manufacturer of refrigeration equipment can produce both refrigeration products and special non-refrigeration items for the War Effort, has been made by Weber Showcase & Fixture Co. here, manufacturer of commercial refrigerators.

More than a year ago when the United States began calling men into the service, the commercial refrigeration industry found itself faced with a demand for hundreds of mammoth sized refrigeration units of various dimensions to meet the widespread demand for refrigerators of different types.

The initial order of any size came from the United States Army when they placed a blanket contract for 14,000 ice refrigerators with several commercial refrigerator manufacturers throughout the United States. Of this order Weber Showcase & Fixture Co., Inc. was awarded a contract to manufacture 1,400 units.

Close on the completion of this order came a contract from the United States Navy, for Weber to manufacture more than a hundred stainless steel, portable low-temperature refrigerators. These units measured 6 x 8 x 6 feet, and were all electrically welded together in one unit. Purpose of the box was to maintain an average temperature of

8° F., for storing frozen products.

Naval specifications called for refrigeration mechanism which would operate these units both by gasoline engine and electrical power. Weber engineers tackled this problem and worked out a refrigeration system.

When the Navy asked Weber to run a test on the first initial unit before delivery, Karl Weber, president of the firm, arranged for a cross-country research test. Chartering a special freight car, the unit was installed in the car, and Wm. A. (Bill) Pruett, research engineer, with E. J. (Bud) Morningstar, refrigeration expert for Weber, started out on a 15-day trip. The car was routed through states where all types of weather would be encountered and temperatures would range from 40° F. to 126° F. Constantly for 15 days and nights, this box was operated at temperature of 8° F.

Before completion of this contract, Mr. Weber was again approached by the United States Navy and asked to design a sectional walk-in cooler that would be practically unlimited in size and capacity. First order called for the manufacture of 28 walk-in refrigerators 96 feet long and 12 feet wide, and 105 units 9 by 14 feet. This 96-foot refrigerator represents the largest unit of its kind ever manufactured, say Weber officials.

On this particular order, the Weber

engineering department designed a sectional walk-in cooler that met the instant approval of government officials. Today standard specifications on sectional walk-in coolers for the U. S. Army, U. S. Navy, and the U. S. Marine Corps carry the major features of the original sectional walk-in refrigerator manufactured by Weber, company officials state.

The Weber engineering staff also designed and manufactured a gasoline powered machine section for the United States Marine Corps, for use in sectional walk-in refrigerators, similar to those used by the Navy.

Today, as the War Production program swings into full operation on a national scale, the Weber plant finds itself busily engaged in the manufacture of all kinds of commercial refrigerator units for all branches of the service.

In addition to this type of work on refrigeration products, Weber is also manufacturing millions of dollars of other materials for war.

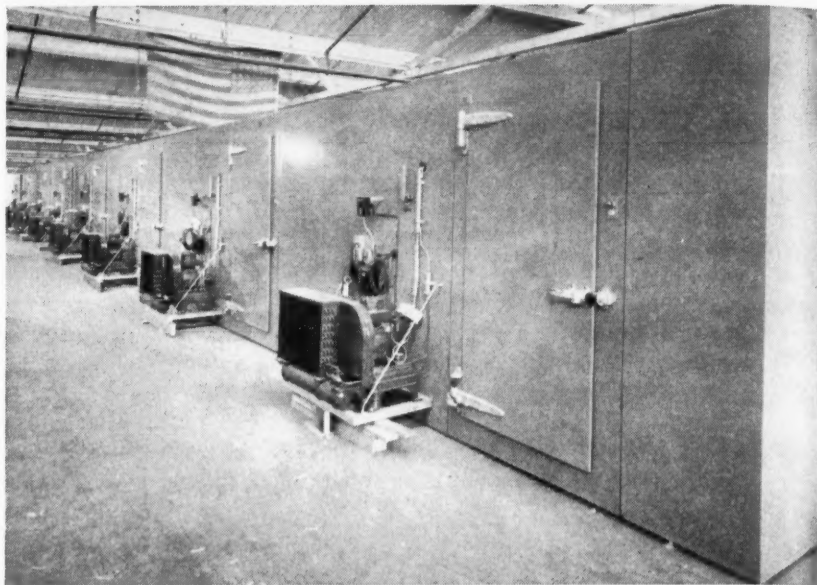
The principal activity for the War Effort at the Weber plant other than refrigeration items is the big cowl ventilator program, wherein Weber is said to be producing the majority of all cowl ventilators in the United States by means of a die-stamping method.

The story is told that when the government agency was attempting to place this contract, veteran sheet metal firms threw up their hands and indicated that they wanted no part of it.

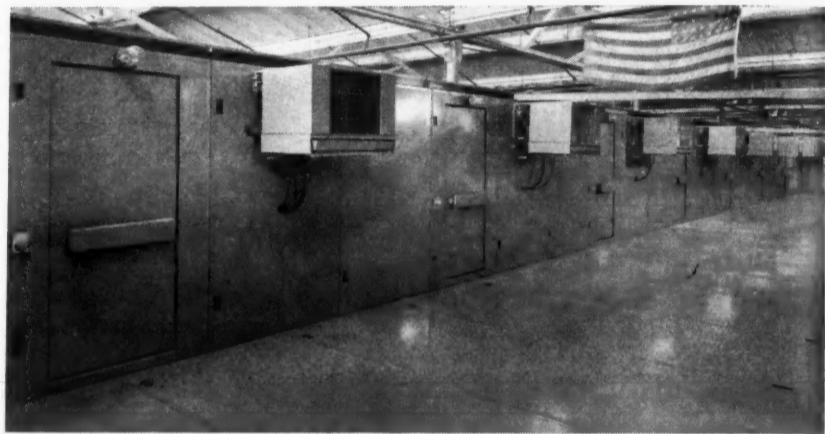
When President Karl Weber of the Weber company heard about it he said "we'll take a crack at it" despite the fact that the work was not a great deal in line with the firm's peacetime production facilities.

Now thousands of cowl ventilators

Large Sectional Cooler for Navy



This is an exterior view of the sectional walk-in cooler which is 96 feet long and 12 feet wide and was built by the Weber Showcase & Fixture Co., Inc., at Los Angeles for the U. S. Navy. The picture shows the many machines needed to operate the cooler.



The interior of the large cooler is shown above. Evaporators are mounted on the outside wall with the machine on the other side. Twenty-eight of these refrigerators were built.

designed for installation on hundreds of ships are rolling off the company's presses.

Enough cold roll steel to fill 50 freight cars will be fed into the presses before present orders from the U. S. Maritime Commission are completed. These involve ventilators of eight sizes and shapes, measuring from 4 ft. 4½ inches to 8 ft. 6½ inches in height, and from 20 to 72 inches in diameter.

Largest of the units, made of 14 gauge steel, weigh 400 pounds each.

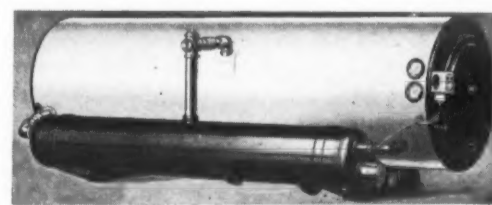
The ventilators formerly were made by a combination of pressing, riveting, and hammering. However, two presses recently completed by Weber engineers will eliminate several of the steps once necessary.

One of these, largest drawing press in the world, will be in operation in July, pressing the largest size ventilators. From a single sheet of steel, this press will form in a single powerful operation one-half of the unit. Later, the halves are welded together to form the complete ventilator.

A Modern GUNGA DIN!

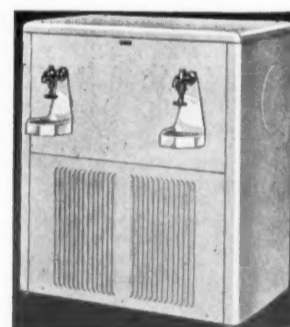


"Day & Night" Storage Type Water Coolers in Army and Navy bases, cantonments and on ships at sea are providing cold water to cool the fevered lips of the sick and wounded, to refresh thirsty soldiers and sailors, to condition the air and to cool dough mixers, developing tanks and other equipment. Workers in war production plants also are provided with properly cooled drinking water to "keep 'em working."



Model CS2W140135 High Suction Pressure Insulated Tank Cooler.

WRITE FOR YOUR COPY OF BULLETIN 46 WHICH GIVES DETAILED SPECIFICATIONS.



Model U2S-2G-1 of 17 "Day & Night" Models for Army and Navy Specifications.

"Day & Night" Coolers meet the specifications of: Navy Bureau of Ships, Bureau of Construction & Repair, Maritime Commission, Army Quartermaster Dept., Army Signal Corps.

INSULATED TANK COOLERS

"Day & Night" Insulated Tank Coolers are used for cooling jacket water. Made in sizes to meet the requirements of the Army Quartermaster Dept. and the Army Signal Corps.



**THE REFRIGERATION INDUSTRY
Is Helping to Win the War!**

PRODUCTION for VICTORY

*Our facilities have been converted
100% to the manufacture of items
for ARMY and NAVY ORDNANCE.*



REX MANUFACTURING CO., INC.

Established 1898

CONNERSVILLE, INDIANA



SOLD THROUGH THE ESTABLISHED REFRIGERATION TRADE

DAY AND NIGHT MANUFACTURING CO.
COOLER DIVISION
FACTORY AND GENERAL OFFICES • MONROVIA, CALIFORNIA

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NEW YORK: A. C. Hemeyer, 442 Broadway • CHICAGO: Marc Shantz, 545 Washington Blvd. • DALLAS: Lee J. Freitas, 5719 Redwood Lane • DECATUR, GA: J. E. Parker, 228 Second St.
Warehouse Stocks at Convenient Shipping Points

Refrigeration & Air Conditioning Industry Creates Invaluable Weapons & Tools of War

Experience on 'Close Tolerance' Jobs Aids Production; Industry Helps Machines and Men to Work Longer

(Concluded from Page 1)

condensers, anti-aircraft guns and mounts, wing sections and fuselages, gun turrets and gun mounts, superchargers, motors, bombs and shells, guns of many sizes and descriptions, secret communication devices, and a long catalogue of controls.

Standard parts are also being produced by this industry for marine engines, automatic guns, airplane engines, radio direction finders, hydraulic controls, submarines, tanks, special trucks, Signal Corps devices, automatic fuses, and many varieties of secret equipment for the Navy.

In addition, the industry has shown other producers of planes and tanks and guns how to produce more faster through the use of refrigeration applications in their machine shops. This somewhat unexpected development is a primary reason why the War Production Board has called a halt on the construction of new plants. Refrigeration is helping us turn out more with what we have already.

Main job of refrigeration in this connection is to enable machine tools to run longer hours. Without refrigeration, circulating oil coolants in machine tools heat up, deteriorate, and damage quality. With refrigeration, proper tolerances are maintained, and tools can run longer periods without rest.

Never before has all American industry attempted to run on a 24-hours-a-day basis. Before refrigeration engineers came along to show industry how, machines, furnaces, nearly everything broke down under the strain of continuous operation. Now, thanks to refrigeration, they can run day and night.

Air conditioning has been of major help in preventing rejected parts. When close tolerance parts are all machined under the same temperature and humidity conditions, they are far more apt to come out uniform. Thus production has been speeded by reducing spoilage.

Refrigeration is also invaluable in solving the problems of aluminum riveting, steel aging, shrinkage, expansion, moisture, dirt and dust, static electricity, corrosion, and many other "bugs" in armament production.

It has also become an essential operation in the production of explosives and all manner of synthetics.

Having converted much of their manufacturing capacity to armament work comparatively early in the game, refrigeration manufacturers have recently become confronted with an enormous demand for their natural products in our war industries, a demand that has forced them to re-install former production lines, hire more and train men, add to plants.

The synthetic rubber program alone will take enormous quantities of refrigeration equipment. So will high-octane gasoline, the expansion of steel production, the making of abrasives, and the tremendous ammunition program now being established. Other

items could be mentioned almost without number—including, of course, refrigeration for food preservation for the army, navy, and civilians.

Truly this is an essential industry, with a right to be proud of its contributions toward Victory.

Dehydrators Speed Shell Loading

SYRACUSE, N. Y.—The time gap between powder and ultimate shell loading at a Southern ordnance plant has been reduced by several hours as the result of a recent installation of silica gel dehydrators by Carrier Corp.

The shell loading plant, operated by Silas Mason Co., consists of a variety of buildings housing three powder and shell production lines, powder drying houses, and storage and shipping buildings. Two production lines are equipped with dehydrating air conditioning units, and others will be changed over with later plant expansion. One of the production lines loads 37 millimeter shells for anti-aircraft and anti-tank use.

On the other line, percussion primers are stamped on the shells.

Crosley Combs Distributors to Find Technical Men For War Work

Aimed To Keep Group Together for After War

CINCINNATI—Crosley Corp. is reaching out into its nation-wide distributor organization for men who may be spared for the duration of the war to come to Cincinnati to devote their energies to the rapidly expanding war production activities of the company.

J. H. Rasmussen, manager of Crosley's appliance division, has made an appeal to all Crosley distributors to have all technical men in their organizations, who can be spared temporarily, and who can qualify for jobs with Crosley as draftsmen, expeditors, production men, engineers, and inspectors, to submit applications for such work. "We want to keep in the Crosley

organization all of the people we can," Mr. Rasmussen says. "When this emergency is over, these people will be available to us for our over-all Crosley program."

"We feel it is our responsibility to take care of all Crosley people, whether they are in the manufacturing part of the business or in our distributors' operations. To us, they are all Crosley people."

Applicants are asked to state whether or not they are amateur radio operators, whether or not they have any experience in ultra-high frequency radio work, and to list their experience in engineering, drafting, factory production, or service.

KEEP 'EM RUNNING

THE old story of "a stitch in time" never had greater application than today... so important is the need for keeping all existing equipment running.

While practically 100% of Weatherhead facilities are devoted to production for Victory, we appreciate the fact that the home front is vital also, and as far as possible we are supplying this front with parts, fittings and accessories—to keep refrigeration equipment running. Call on us for what you need. We cannot make long-range promises, but will do our best to take care of your requirements.

THE WEATHERHEAD COMPANY

300 East 131st Street • Cleveland, Ohio



*Refrigeration
Valves,
Fittings and
Accessories*



How a Cabinet Plant Trained Men & Converted Machines to War Work

Step-by-Step Story of Conversion Will Help Other Manufacturers Faced with Similar Problems of Personnel Training

(Editor's Note: This article was prepared for the War Production Board to show manufacturers how they may be able to speed up war production.)

WASHINGTON, D. C.—Any engineer will tell you there's no more a universal blueprint for conversion of a plant from peace to war production than there is a universal elixir for the treatment of disease.

But the experience of one plant may point the way for others.

With the thought that the example of one firm might be of help to others, the Information Division of the War Production Board studied the experience of a big electric company.

At the outbreak of the European phase of the present war, one of this plant's chief interests and its largest single operation was the manufacture of refrigerator cabinets on special purpose machinery ill-adapted to other uses.

Today, refrigerator cabinets are almost lost among a variety of war orders, including such items as howitzers, gun mounts, searchlight power plants, Navy turbines, mine

sweeper equipment, airplane gun turrets, and ammunition hoists.

In the course of the change-over, every possible regular employee skilled or unskilled, who could be used in war work after proper training has been pressed into service.

Old men in their 60's and 70's, long since retired, have been called back to their posts and work side by side with young men fresh from vocational training and in-plant instruction.

Old machines and tools, whose designers never thought of them as instruments for the protection of America through arms production, have been turned to war work.

New machines and tools have been necessary, new buildings and equipment have appeared on the scene, but wherever possible, to save time and money and machine tool-making resources of the country, existing company equipment has been pressed into service.

The Status of Plant At the Start of War

At the time the first war order—

for the howitzers—was booked, in October, 1939, the company had seven main buildings, five occupied and two empty.

The used buildings included the refrigerator cabinet plant, the electric locomotive and railway control apparatus work, the industrial and transportation motors division, a tool shop, and a foundry. Employment on May 1, 1940, stood at 5,696, with 2,281 of these busy making refrigerator cabinets.

First trend was toward taking on war orders as a frosting on the cake of normal civilian production. New staffs were formed around the company's regular key men, with the result that by May 1, 1941, total employment had soared to 9,054 with 3,012 men and women busy on refrigerator cabinets.

By that time, 251 men were busy making gun mounts and 351 were occupied making Navy turbines in one of the recently empty buildings.

Rise of Employment On Defense Projects

By last August, however, labor and material supplies became too difficult to allow continued full-scale civilian production of consumer's goods and the Office of Production Management, since replaced by the WPB, served notice there would be a sharp cut in refrigerator production, amounting, in this plant, to about 46% under the July rate.

The result was that by Sept. 1, 1941, while total employment at the

Works had risen still further to 9,695, refrigerator cabinet payrolls had been cut to 2,097.

Further cuts during the fall and winter forced the level down to 1,500 employees, while total cabinet production fell from about 18,600 a week to less than 7,000, although total works employment remained about stationary at around 9,600.

New employment on war work accounted for the maintenance of this level. By the year-end more than 1,200 were busy making Navy turbines. Payrolls on other war work were steadily on the increase.

How the Training of Workers Was Handled

Accomplishment of this change-over involved some severe headaches for the management. One of the toughest concerned the problem of what to do with the unskilled and one-skilled workers normally in the refrigerator cabinet plant.

Executives determined to try, as far as possible, to provide for the welfare of these employees, who, through no fault of their own, were suffering from restriction in consumers' goods production.

The simplest method was to try to find war work adapted to the plant's facilities. After some months, an order for ammunition boxes was placed with the firm but, so far, employment resulting is tiny and temporary.

From Assembly Line to Machinist Operations

The company also undertook to train the refrigerator workers to new skills. There was no time to make them all-around machinists—that takes years. But there was time to teach all who were willing to undergo training and who had the natural mechanical aptitude for factory work a skill in one or more operations of a single machine.

As fast as possible—some never lost a day's work—workers let out of the refrigerator plant were shifted over to the machine shops. Thus, alongside old-line skilled and versatile craftsmen, they studied and watched as these men performed their duties on single operations. After a week or two, learners generally were able to operate the machine themselves.

Thus, a typical refrigerator worker from the assembly line might be placed alongside a highly skilled machinist operating a turret lathe in the Navy turbine plant.

Steps Followed in Training Machinists

By seeing the machinist go through the same motions on the same part day after day for a week

or two, and having the operation patiently explained to him time after time, the learner would be qualified to do the same thing under close supervision himself.

Then, for two or three months he would operate the machine himself under the eye of an instructor overseeing 10 or 12 learners at the same time.

Thus, after the first week or two, nine to 11 machinists were released for other machines and other new learners or for jobs where their more versatile skills were needed.

And at the end of the two or three month period, the learners themselves would be skilled enough to stand on their own feet, although their skill, would, of course be on single operation jobs.

In this way, during 1941, more than 421 unskilled employees were transferred to jobs as "learners." About another 200 were absorbed in regular transfers, for they had skills to start with.

Further, no outside help was employed where the reservoir of furloughed employ could fill the needs.

But other labor was necessary.

Sources of Supply for Added Trained Help

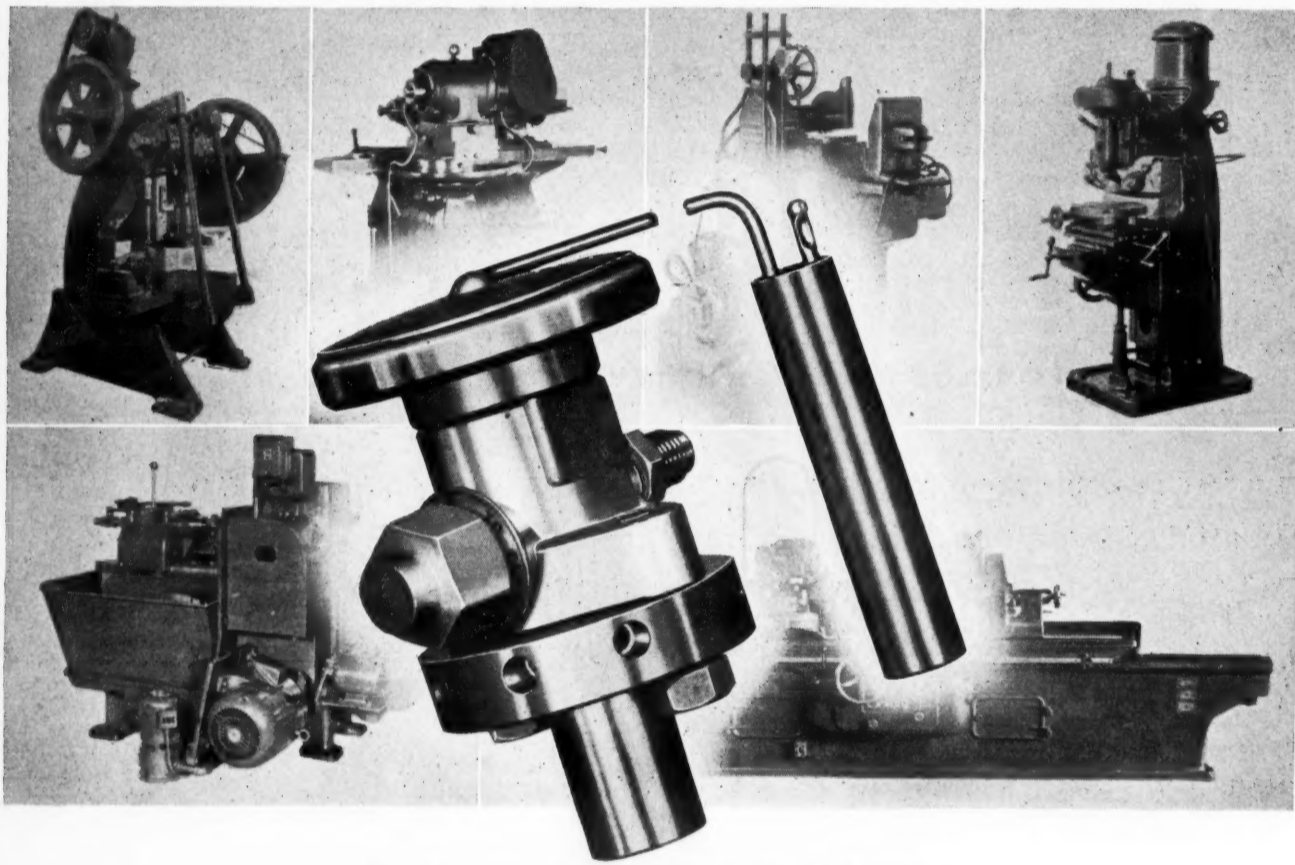
Largely from vocational education classes financed through school board, state and Federal funds under the guidance of the OPM, and with the aid of instructors and facilities supplied by the company, some 550 new employees were added to the company payrolls in 1941.

Thus, the School Board, in two annexes—part of the high school and in part of the electric works—conducts an eight-week course for about 200 men in three shifts. Included among the courses are blueprint reading, shop practice, and use of instruments in inspection.

These men, or men with similar rudimentary knowledge picked up in other jobs, then are ready for learners' jobs in the works.

Still another supply of skilled labor was needed, however, and the plant added some 617 skilled operators to its payrolls during 1941. Among

(Concluded on Page 7, Column 1)



ALCO VALVES

Join the Ranks of Industry's Army of Tools for War Production

Again Alco Engineered Refrigerant Controls find important places in our Nation's production as an "auxiliary machine tool."

Thousands of plants engaged in War Production have found close temperature control essential to meet the exacting demands of the U. S. Army, Navy, and Air Corps. Air Conditioning of tool rooms, aircraft testing laboratories, material testing chambers, ordnance plants and other war production industries is doing much to increase the speed and efficiency of both men and machines.

For years, Alco engineering and design, quality

materials, and precision construction have set standards for the entire industry. Today, the high efficiency and rugged dependability of Alco Refrigerant Controls is more important than ever, to meet the rigorous demands of all-out War Production. They have thoroughly proven their superiority and ability to improve the performance of any air conditioning or refrigeration system.

As a factor in proper temperature control they are as essential as many of the machine tools whose work is made faster and more efficient because of industrial air conditioning.

ALCO VALVE COMPANY

2620 Big Bend Blvd. — St. Louis, Mo.



Engineered Refrigerant Controls

THE STANDARD OF THE INDUSTRY



GOVERN AIR

Designers and Manufacturers
Refrigeration and Air Conditioning Equipment

★ ★ ★ ★ ★

GOVERN AIR equipment is being used in Army Cantonments,
Naval Air Stations, Munitions Plants and with the A. E. F.
ACCEPTED and APPROVED by WAR DEPT., U. S. ENGINEERS

★ ★ ★ ★ ★

Food Preservation

For Victory

GOVERN AIR CORPORATION

DALLAS, TEXAS

605 West Main St.

NASHVILLE, TENN.

OKLAHOMA CITY, OKLAHOMA

How Machinery Formerly Used in Making Refrigerator Cabinets Was Made Adaptable To the Production of War Products

(Concluded from Page 6, Column 5)
these were such men as:

A 68-year-old music teacher, watchmaker, and hobby mechanic now busy on tiny precision parts.

A topflight pattern maker, 69, who retired from the payroll in 1921 to take casual employment and returned to a steady job "for the duration" in December.

A worker pensioned in 1931 after 20 years' service, who returned to the shop as an apparatus wireman a year ago.

Thus, by the end of 1941, some 2,188 workers had been added to production payrolls in the works and further increases, of course, have occurred since then.

Changes Made in Physical Layout

On the physical side, the two big empty buildings were cleaned out and turned over to Navy turbine and gun mount manufacture and new construction is under way.

Many of the old machines, espe-

Many Qualified Plants Missed in Subcontracting, Ordnance Deputy Claims

CHICAGO—The Ordnance Department is not even beginning to tap the resources of small, independent machine shops, bluntly declared Col. Donald Armstrong, deputy chief of the Chicago Ordnance District, recently, blaming lack of funds for preventing full use of this area's vast potentialities.

The deputy chief said that the district could take on a vastly greater load of war production, with the untouched small shops providing "a tremendous potential here."

"Our load of war work depends on the appropriations that Congress makes," he said, virtually challenging Congress to provide an appropriations bill that would bring all manufacturers into the war program.

A special industrial survey has revealed 5,000 to 6,000 plants, large and small, in the Chicago district capable of taking ordnance subcontracts, and "hundreds of them" in danger of going out of business because there is no civilian work for them to do and the Ordnance Department has no contracts to give them, Col. Armstrong said.

Subcontracting has been the answer to any ordnance bottle-neck, the colonel asserted. By using the facilities of smaller shops to put together parts that go into large armaments, he pointed out, the big factories are able to roll the finished products off the assembly lines.

For example, on April 30 his office had 1,724 prime contracts and, as part of these, 13,874 subcontracts.

The Ordnance Department is especially intent on developing subcontracting, even in shops employing as few as 10 men, because the Navy, Air Corps, and Maritime Commission all have priorities ahead of most types of ordnance manufacture and "we have to use all the ingenuity we can summon," Col. Armstrong stated.

"There is no use kidding these small operators along," he continued. "We are never going to have enough business for the Ordnance Department to salvage all these places, and a lot of them are going to have their businesses wrecked. They are good shops, too."

He made it plain that the Ordnance Department is not permitting big contractors to ignore the possibilities of splitting their jobs with subcontractors.

"Companies with backlogs of orders are 'urged' to subcontract," he explained. "We are going to get the tanks and guns we need, and we insist on subcontracting, despite any reluctance on the part of the contractor."

"There is only one thing that counts today," Col. Armstrong emphasized, "and that is getting out the tanks and guns and weapons we need. If it costs more, and subcontracting does cost more, well, that's just too bad."

Cooperation in Making Of New Machine Tools

An American turning lathe formerly roughing and finishing armature shafts now is turning the outside diameter of gun tubes.

On the other hand, much new machinery has been necessary and here the company has used its available tooling facilities literally to act as sub-contractor for tool companies working on its own machine tool orders.

In this manner, officials boast of speeding production of the Navy turbines by three months.

To get into production, new machinery needed included 34 boring mills and lathes from an Ohio tool company already overloaded with orders from war plants. Delivery prior to October, 1941, seemed impossible, until the electric company discovered it could machine some parts for both lathes and boring machines in its own shops, ship them back to Ohio for assembly on the machines, and chop three months off the delivery date.

Midwest Mfg. Co. Adds Production of Direct War Products to Making of Refrigerators for Army & Navy

GALESBURG, Ill.—Production on direct War contracts is mounting daily at the plant of Midwest Mfg. Co., a firm which manufactured refrigerator cabinets of all types prior to the Emergency. Floats for the Navy, flares, and refrigerators for Army and Navy use are the items being made under War contracts.

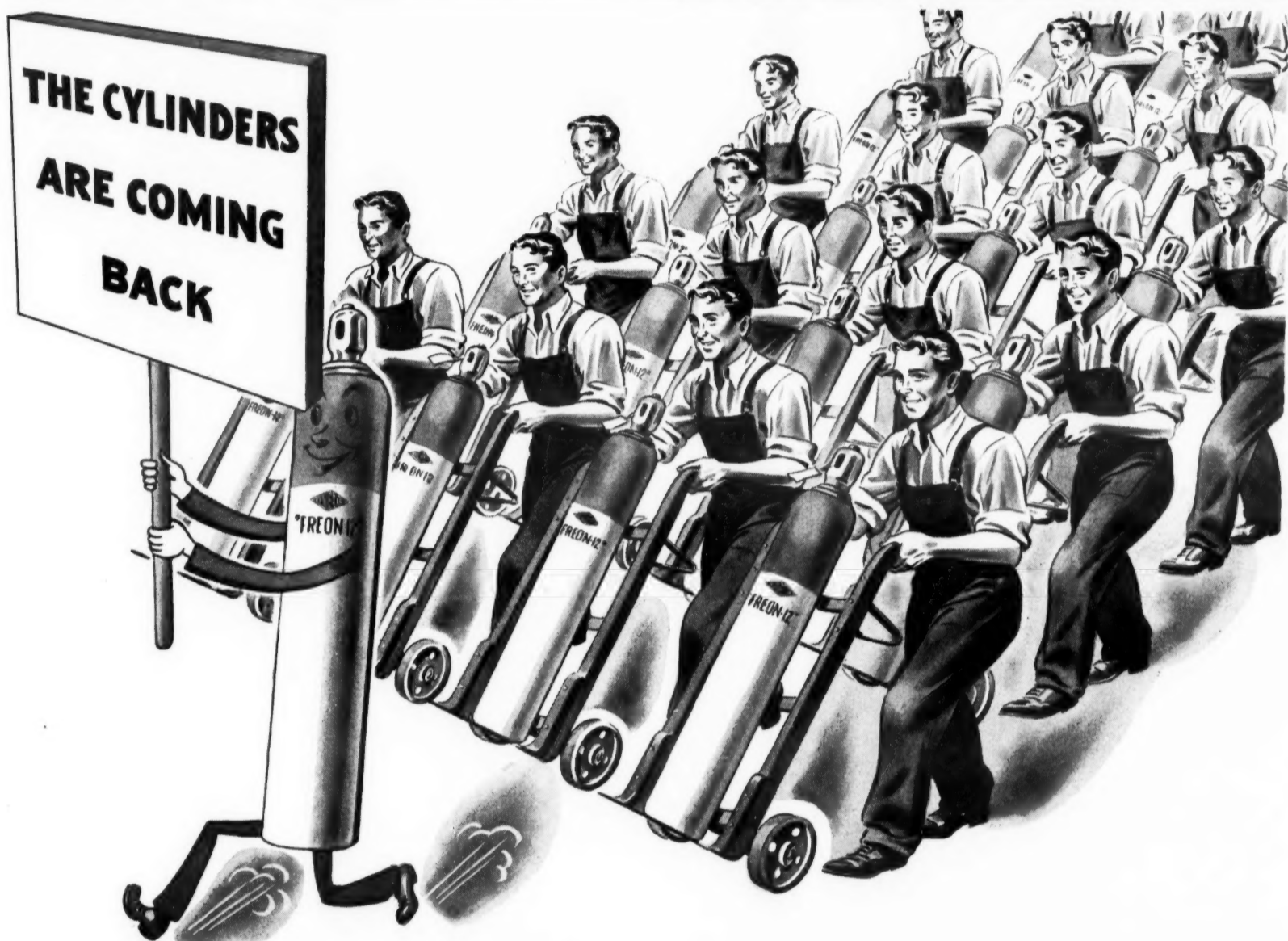
Production on the aircraft flare contract started about June 1 at Midwest. Since then new employees have been added every day, and old employees called back to work. The departments operating in the production of the aircraft flares are the new pyrotechnic department, flare assembly, metal department, welding and paint departments.

Production has been jumped on the production of floats for the Navy.

An officer from the Experimental and Research Department of the Navy visited the Galesburg plant not long ago and okayed revised specifications on the float. Midwest Mfg. Co. engineers conducted the developmental and experimental work on this.

Midwest officials report that both commercial and household types of refrigerator cabinets are being used in many phases of the War program, with many cabinets going overseas.

Prior to the emergency, Midwest had made many small refrigerator cabinets of from 5 to 16-cu. ft. capacity for the Navy and Maritime Commission. These orders have rapidly expanded into quantity shipments for battleships, sub chasers, mine sweepers, aircraft tenders, cargo vessels, etc.



...AND KINETIC CAN AND WILL SUPPLY THE "FREON"

TO THOSE in the industry who are so wholeheartedly answering our call to return "Freon" cylinders promptly, Kinetic Chemicals, Inc., wishes to extend its thanks and to give this reassuring statement of the availability of "Freon-12":

There is now *no* shortage of "Freon-12." As the situation stands today, there will be enough "Freon" available for the servicing of all refrigerating machinery in the United States and friendly foreign countries. In addition, there will be enough available for the initial charge in such refrigerating machinery as is permitted to be built under the limitation orders of the War Production Board.

This satisfactory supply situation has been brought about through the elimination of bottlenecks—making

adequate amounts of the raw material available and raising our plant capacity 38% over that of last fall. As a result, during the months of March, April, May and June, a full allocation of "Freon" was made in the amounts requested by everyone. In addition, we have been able to build up a stock of "Freon-12" to take care of the peak demand during the summer months.

Of course, this does not mean that conservation of "Freon" refrigerants is any less necessary during the war months ahead than it has been in the critical period through which we have just passed. Allocations of raw materials to this industry are premised on proper and careful use of "Freon-12." We urge you to cooperate with the Refrigeration and Air Conditioning Industry's "Program for Victory"—to

impress on every user the necessity for proper maintenance of equipment to conserve power, repair parts and refrigerants, and to return cylinders promptly.

With your full cooperation, we shall be able to continue to report: "There is no shortage of 'Freon-12.' Adequate supplies are available for servicing existing installations and for the initial charges for permissible new equipment."



FREON

REG. U. S. PAT. OFF.

safe refrigerants

*"Freon" is Kinetic's registered trade-mark for its fluorine refrigerants

KINETIC CHEMICALS, INC., TENTH & MARKET STREETS, WILMINGTON, DELAWARE

Salvage for Victory

Virginia Smelting Co. Sponsors Campaign Among Jobbers for Collection of Scrap

Proceeds From Salvage Sale To Go To Charities

WEST NORFOLK, Va.—In line with the policy of having its publicity directly assist the war effort, the Virginia Smelting Co. here has just launched a "Salvage for Victory" plan that will take in all jobbers as collection stations for rubber and metal, both types of scrap urgently needed in war production.

Virginia Smelting jobbers will set up bins, one for metal and one for rubber, in their stores for the convenience of servicemen who will be called upon to fill the scrap bins. Thus jobbers will help supply vital materials for the production of war machines and ammunition as well as to increase the available supply of raw materials essential to the refrigeration industry, Rollin H. Israel, advertising manager, pointed out.

In cooperation with the Bureau of Industrial Conservation of the War Production Board, Virginia is urging its jobbers to round up the following:

1. Scrap rubber (except tire casings).
2. Copper.
3. Brass.
4. Iron.
5. Steel.
6. Aluminum.

7. Lead.

"This war is being fought with machines made from the very same raw materials that are needed for the fabrication of refrigeration parts and supplies," Mr. Israel declared. "It should, therefore, be of utmost interest to us of the refrigeration industry to contribute our efforts toward putting every available pound of these vital materials—rubber and scrap metals—back into production processes."

PROCEEDS TO CHARITY

According to the plan outlined by the company, jobbers will sell the collected scrap to dealers recommended by the state salvage secretaries. All proceeds will be turned over to a local charitable institution.

A shelf holding a "Contributor's Register" pad will be on hand in each store on which contributors can register each time they deposit scrap. This register list is to be presented to the welfare agency to give proper credit to those whose donated scrap produced the money given to the institution.

Servicemen are being encouraged when making calls to ask the customer for any scrap rubber or metal about the premises. Customers are

being urged to form the habit of bringing in a broken or worn out part for every new part they purchase to swell the salvage heap.

Each jobber has been instructed to appoint an assistant as "Conservation Captain" whose job it will be to promote the program and to know how to handle the salvage. The company provides an overseas hat for the "captains" to wear as identification.

PROMOTIONAL MATERIAL

Virginia Smelting is also sending each jobber a large promotional poster, direct mail inserts announcing the program, and the registration pad.

The name of each participating jobber will be registered with the Bureau of Industrial Conservation in order that he will receive proper recognition at top headquarters, according to Mr. Israel.

Virginia intends this salvage program to be a long-range one—to be kept going to the last day of the War.

"Very soon salvage receptacles will be as stylish as cuffless pants," predicts Mr. Israel.

St. Louis Service Company Manager Killed in Plane

ST. LOUIS—Harold Schiffern, young former manager of the De Soto Refrigeration Service Co. here, was instantly killed in June when a navy patrol bomber on which he was co-pilot crashed near Corpus Christi, Tex. Mr. Schiffern had been an aviation cadet for 11 months.

Booklet Tells How To Protect Rubber At All Times

NEW YORK CITY—Complete suggestions for the proper care of precious rubber products from their initial design through inventory and storage use, maintenance, inspection, and repair are outlined by the United States Rubber Co. in "First Aid to Industry in Conserving Rubber," a 48-page illustrated book just published.

"Rubber has several natural enemies which are always ready to destroy it if given the chance," the book states in summarizing the care of industrial rubber. "These include: oils, greases, solvents, concentrated acids, extreme heat, dryness, sunlight, and ozone. In combination their separately destructive actions are often accelerated tremendously."

"Other substances which may not be harmful to rubber itself lie in wait to attack cotton duck, metals, or other materials which are combined with rubber to form certain mechanical products. Some of these are: water, rot, alkalis, dilute acids, and many gases," industry is warned.

In this book U. S. Rubber tells how to prolong the lives of all mechanical rubber goods, including the specific care of: hose of all types; transmission, conveyor, and elevator belts; mechanical packings; electrical tapes, wires, and cables; molded and extruded rubber goods; rubber lined equipment; rubber mountings; mats and matting; rubber printing materials; rubber and resin bonded grinding wheels; and paper machine, cannery, textile, and mechanical rolls.

How One Service Company Is Saving Its Tires

ST. LOUIS—Even though new tires are available to the firm, the City Refrigeration Service Co. here, large commercial and domestic service organization, is exercising the strictest possible tire conservation.

The first thing done was to cut deliveries of small parts, gaskets, trays, and electrical connections entirely. Now, when a customer who does his own work, or merely needs a small replacement calls the company, the part is sent out parcel post C.O.D.—which of course requires no rubber, although it costs a few cents to handle.

"We've also cut out Saturday deliveries and Saturday collections altogether," Mr. Daniels said, "which used to keep our men busy all Saturday afternoon, and involved as much as 50 miles of driving. We make one collection stop a week, ask the customer to cooperate by having the money ready."

G-E Will Identify Radio Service Shops

BRIDGEPORT, Conn.—Radio service shops which qualify under the G-E radio service plan will be identified by a 29 inch x 19 inch plaque, and will receive the benefits of a substantial national advertising campaign carried on through national magazines and by radio, it has been announced by the G-E Radio, Television & Electronics department.

In cities of 50,000 and over, names of qualified service shops will be listed in local telephone directories under an identifying G-E Electronic Tube emblem.

Ultimate purpose of the program is to establish the emblem of the G-E Electronic Radio Tube as the sign of guaranteed radio service at reasonable prices, and to keep reminding the public through national advertising, to watch for that emblem. National magazine advertising space formerly devoted to selling new sets will stress G-E service, and the Frazier Hunt broadcasts three times a week will continually highlight the service program.

The G-E Electronic Radio Tube emblem is on the identifying plaque.

In order to become a qualified G-E radio service account, a proprietor must: (1) Be set up to render efficient radio service; he must have modern test and repair equipment. (2) Be qualified to render satisfactory service on all makes and types of radios and radio-phonograph combinations. (3) Must stock an adequate supply of standard radio parts, including G-E parts. (4) Must stock G-E Electronic tubes. (5) Must sign a pledge to give expert and efficient service, to charge fair prices and itemize all bills, and to guarantee his work.

The Machine For Your Next Job...

If it's a refrigeration job...no matter how big or how small...we can supply Lipman equipment to fit the specifications. Let us work with you.

GENERAL REFRIGERATION DIVISION
Yates-American Machine Co.
Dept. AC-3, Beloit, Wis.



Model 153 Water-cooled Machine

Air Conditioning Wears Overalls

...and is doing a man-size job in America's war production.

If, when air conditioning is mentioned, we think only of cool theatres...more comfortable restaurants, shops and homes, we overlook one of the most vital services of this great industry.

Today, in thousands of manufacturing plants, air conditioning "wears overalls"...takes an important part in actual production processes...helps produce more and better steel...increases the quantity and improves quality of many other munitions of war.

Blast furnaces, for instance, use twice as many tons of air as iron ore! When air is conditioned the furnaces turn out much more iron, save thousands of tons of coke...Air conditioning helps build planes that fly higher and faster...safeguards powder...increases accuracy of fuses...makes possible closer precision work. In thousands of factories air conditioning speeds production for Victory.



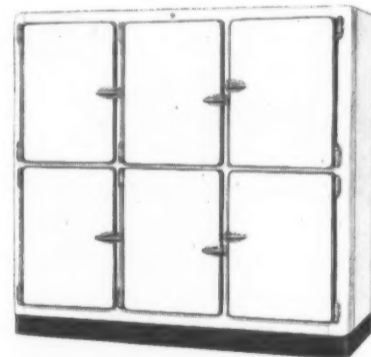
Penn serves this vital industry with the sensitive, dependable and accurate automatic controls needed for the operation of refrigeration and air conditioning equipment. Simultaneously, Penn is devoting its research and production facilities without stint to direct work for our armed forces. Penn Electric Switch Co., Gosben, Ind.



REFRIGERATION, AIR CONDITIONING, ENGINE,

HEATING, PUMPING AND AIR COMPRESSOR

HUSSMANN DEPENDABLE REFRIGERATION



68.5 cubic foot Model. Other sizes available. All meet government specifications. Also complete line of Storage Coolers.



1/4 H.P. to 35 H.P.

MORE THAN TEN THOUSAND HUSSMANN REFRIGERATORS AND REFRIGERATION SYSTEMS ARE IN USE SERVING THE ARMY, NAVY, MARINE CORPS, MEDICAL CORPS, POST EXCHANGES AND VARIOUS OTHER GOVERNMENT DEPARTMENTS AT HOME AND IN FOREIGN FIELDS.

Hussmann Experience in Refrigeration of Perishable Foods and Satisfactory Record of Performance with Government Qualifies us to Serve Your Requirements.

In addition to Refrigeration Equipment Hussmann is now manufacturing miscellaneous items for Ordnance Districts.



HUSSMANN-LIGONIER PRODUCTS - Hussmann Bldg., St. Louis, Mo
Allied Store Utilities Company

Application For New Locker Plant Projects Should Go To Agricultural Dept. Office

Instructions Given For Use of the Form PD-200

(Concluded from Page 1, Column 2)

members of the committee, had made extended visits to many WPB branches and government agencies to explain the case for the refrigerated locker plant industry.

Under the setup as now established the National Frozen Food Locker Association has issued the following bulletin of instructions regarding the obtaining of priority assistance in the expansion of existing locker plants, and the building of new ones:

BULLETIN

"The following to be sent to Kenneth E. Shepard, Chief, Processing Units, Office of Agricultural War Relations, Room 5515, South Agricultural building, Washington.

"1. Form PD-200 (application for Project Rating). If your local board does not have a supply of these, you can obtain them by writing to War Production Board, Room 1501, Social Security Building, Washington. This application comes in five copies, send four of them to Mr. Shepard, retain one. The application is to be signed by the end user—not the dealer.

"2. To supplement PD-200 we have prepared a special form for locker plants. Form No. 1 is for expansion of existing plants and the building of branch locker rooms. Form No. 2 is to cover new plants. This is being prepared in quintuplicate—attach a copy to each PD-200 copy and retain one.

"3. To answer Item 16 on PD-200, have the County War Board fill out the usual recommendation form, L-41-1, and in addition have the County War Board attach answers to the following questions which the Committee on Locker Plants in the Office of Agricultural War Relations will want to know—

"a. Character of farming in the community in which the project is located.

"b. Average size of farms in this area.

"c. Percentage of tenancy on farms in this area.

"d. Estimate of annual shifting of tenancy.

"e. Do the farmers in this section raise foods, such as meat animals, fruits, and vegetables, etc. for their own use?

"f. A statement that the County War Board feels that the community needs and will welcome this proposed locker service.

"g. A statement that the applicant bears a good reputation in the community and that it is felt that the proposed locker plant will be operated to the satisfaction of its patrons.

"4. Submit properly checked Coding Chart to accompany copy of application that goes to Air Conditioning and Refrigeration Branch of WPB."

"The National Frozen Food Locker

Association, at its offices at 1421 Walnut St., Des Moines, Iowa, has copies of Forms Nos. 1 and 2, referred to in item (2) above. These forms are available at a cost of 5 cents each.

"There is a War Board in each county in the country, made up of the County agent, the Extension agent, and representatives of each of the Farm organizations. The O.A.W.R. will rely a great deal on their representations, particularly on their answers to questions 'a' to 'g' under item (3) above.

"INSTRUCTIONS ON MAKING OUT PD-200

"Fill out items, 1, 2, and 3 as requested.

"Item 4 will not enter into locker plant expansion or new construction.

Answer 'No.'

"Under item 5, refer to 'special supplementary application' which is attached.

"Item 6—'Processing and storage of locally grown meats, fruits, and vegetables for local consumption.

"Item 7—given number of lockers to be provided for, multiply by 600 to give number of pounds of food-stuffs expected to be handled annually.

"Item 8—Preservation of foods in community in which it is grown. Method of preservation, freezing, will save tin and steel as much of this food would otherwise be canned. Consumption at home will save transportation.

"Items 9, 10, and 11—answer each.

"Item 12—This is important. If project is being financed by advance rental of lockers, 50 or 60% of which may already be paid in advance for one year, it will make a much stronger case. The O.A.W.R. wants to know that the facilities being provided for will be put to use at once.

"Item 14—If expansion of existing plant, give estimate of additional food preserving capacity to be

expected.

"Item 15—If existing building is being used, make the fact clear.

"Item 16—This covers endorsement of County War Board already referred to. Letters from the mayor, county agent, or other officials, will also help the application.

"List of Materials Needed for Project—list these briefly on PD-200 form, with instructions to see Supplemental Form for detailed list.

"INSTRUCTIONS REGARDING SUPPLEMENTAL LOCKER PLANT FORMS Nos. 1 and 2.

"Answer every question. Temporarily, it would take a very high priority number to secure lumber from a mill. Therefore, you must assure the O.A.W.R. that lumber necessary for this project can be obtained locally (local lumber yard stocks are not frozen).

"The same applies to wiring material, which cannot be obtained without an A-1 rating. Be sure to make clear that wiring materials are available. Do not ask for copper tubing, you will not get it, and a request for it will damage the entire application."

Williams Is Elected Vice President of Stewart-Warner Corp.

CHICAGO—Lynn A. Williams, Jr., secretary of Stewart-Warner Corp. and head of the company's legal department, was elected a vice-president of the corporation June 29 by the board of directors. In his new position he will continue all his former corporation duties.

In the nine years that he has been associated with Stewart-Warner, Mr. Williams has been affiliated with most of the important steps that the company has taken as part of a long range expansion program.

As a member of the corporation's "new devices committee," which looks into new production methods and products submitted by inventors, he has been instrumental in the development of many of Stewart-Warner Corp.'s innovations in the fields of radio, refrigeration, lubrication, and auto accessories.



NOT ONLY is McQuay furnishing specialized heat transfer components for war planes, naval vessels, motorized units and cantonments... but standard McQuay Heating-Cooling

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Triple Seal Protection for rotating shafts, even when shafts are bent or scored. No bellows to crack. Nothing to get out of order. Let Chicago solve your seal problems now and after the war.

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20 North Wacker Drive
CHICAGO, ILLINOIS

Priorities Information

Copper Freed For Use In Some Radio Parts

WASHINGTON, D. C.—Virtually complete exemption to the use of copper in producing radio replacement tubes for civilian sets for public use and parts for commercial radios was given by the War Production Board in a recent order issued from the Copper Order M-9-c.

Replacement parts for police, aviation, public address, and other commercial radios, except parts for civilian receiving sets, were also exempted.

Both exemptions, covering production of replacement tubes for civilian radio sets and replacement parts for commercial radio, in the use of copper inventories of manufacturers are limited to such copper as was obtained by the manufacturer after Feb. 28. If the copper was obtained before this date, all such replacement component production is restricted to articles bearing a preference rating of A-1-k or higher.

For the use of their copper inventories for replacement parts for civilian sets for public use, parts manufacturers must still file appeals with the WPB Copper Section on a temporary basis. Appeals for regular replacement parts are being granted individually, pending development by the WPB Radio Section of the contemplated general radio replacement allocation program.

Precision Instrument Distribution Limited By Preference Order

WASHINGTON, D. C.—Distribution of gauges, precision measuring tools, testing instruments, and chucks was brought under stricter control by the issuance by WPB of General Preference Order E-5.

Under the order no gauge, precision measuring tool or testing instrument, may be sold except pursuant to a priority rating of A-10 or higher.

Also certain specific types of gauges, tools, and instruments costing more than \$200 may not be purchased except pursuant to a rating assigned to a purchaser by a preference rating certificate or preference rating order of the P-19 series.

The order also provides that no chuck may be sold except pursuant to a rating of A-10 or higher.

Producers' present delivery schedules for gauges, precision measuring tools, testing instruments, and chucks should be maintained for 30 days without change.

Thereafter purchase orders are to be scheduled according to the terms of the order.

General Preference Rating Order E-1-a, revised, which formerly controlled the distribution of gauges and chucks, was revoked and replaced by E-5.

Tin Use Limited & Put Under Allocation

WASHINGTON, D. C.—Tin Conservation Order M-43-a has just been amended, the amendment being in effect a re-writing and consolidation of the order so that it places all tin under allocation and reduces further the use of tin in non-critical products.

Use of tin in some 28 types of products (those on the List "A") are forbidden, as in the original order. All other products, except those covered by other specific WPB orders, may, after July 1, 1942 use only 30% of the amount of tin used in the corresponding quarter of 1940. Until June 30, 1942, 40% of the 1940 amount may be used. This will effect a 10% reduction of tin consumption in all products not specifically excepted in the order.

The order prohibits the "manufacture or use of any solder having a tin content of more than 30% by weight; provided further that, until July 1, 1942, any person may use wiping solder having a tin content of not more than 38% by weight.

In list "A" specific prohibition is made against the use of tin in beverage dispensing units and parts of such units, and refrigerator trays and shelves. Regarding beverage dispensing units the provisions reads:

"Beverage dispensing units and parts thereof including pipe (except for maintenance and repair of existing units, and only where and to the extent that used tin pipe in an amount equal in tin content to the tin required, is returned by customer."

PRP Amendments Clarify Interim Status of Firms Not Certified & Redefine Extension of Ratings

WASHINGTON, D. C.—Priorities Regulation No. 11, which makes the use of the Production Requirements Plan mandatory for a large segment of American industry, has been amended in two respects: to clarify the interim procedure to be followed by companies which have not yet received a PRP certificate; and also to redefine the permissible use of ratings by companies already operating under PRP.

The regulation as originally issued permitted companies who had filed their PRP applications before July 1, 1942, but had not yet received the PRP certificates, to receive deliveries and apply preference ratings within certain limitations. The amendment omits the specific date, and makes this procedure available to any company which is not in default in filing its application, so as to permit the placing of purchase orders at any time before the deadline for filing the PRP applications, which may in certain cases be extended beyond June 30.

Another section of the amendment allows companies which have been operating under the Production Requirements Plan during the second quarter of 1942 to accept delivery of materials rated on their second quarter PRP certificate during the third quarter, if such delivery has been delayed, in addition to the materials which they are authorized to receive by their third quarter certificate.

order calling for delivery in the third quarter of 1942 of any metal in any form included on the attached Metals list, if the Producer thereof certifies in writing to such person that substitution of other orders is impossible and that cancellation would disrupt the producer's production schedules and result in diminished production; in such case delivery may be accepted under such order without regard to the restrictions of paragraph (d)(1)(ii)."

(b) Paragraph (e) is amended to read as follows:

"(e) **Interim Procedure for Class I Producers.** Any Class I Producer who is not in default in filing his PRP Application but has not received his PRP Certificate may apply or extend preference ratings for delivery during the third quarter of 1942 as follows:

(1) If he has been operating under the Production Requirements Plan, he may apply the same preference ratings he was authorized to apply during the second quarter of 1942 to not more than 40% of the amount of each material which he has indicated on his PRP Application as his anticipated requirements for the third quarter.

(2) If he has not been operating under the Production Requirements Plan, he may continue to apply and extend ratings under any applicable preference rating orders or preference rating certificates in the same manner as permitted prior to July 1, 1942; and, notwithstanding the termination of any preference rating order on or after June 30, 1942, the same shall be deemed to continue in effect as to any such person until he receives his PRP Certificate; provided, however, that he shall not apply or extend ratings to the delivery in the third quarter of 1942 of any material in an aggregate quantity greater than 40% of the amount of such material which he has indicated as his anticipated requirements on his PRP Application for that quarter, subject to any further restrictions contained in the preference rating certificates or orders assigning the ratings which he is applying or extending.

(3) A Class I Producer who applies or extends any preference rating pursuant to subparagraphs (1) or (2) of this paragraph (e), shall deduct the amount of any material which he has received or to which he has applied or extended such rating from the amount rated or otherwise authorized by his PRP Certificate when issued to him."

Issued this 22nd day of June, 1942.

AMENDMENT NO. 2 TO PRIORITIES REGULATION NO. 11

Production Requirements Plan

Priorities Regulation No. 11 (\$944.32) is hereby amended as follows:

(a) Paragraph (d)(1)(iii) is amended by inserting, before the first semicolon in the second sentence thereof, the following words:

"or any previous PRP Certificate and not yet received," so that said sentence will read as follows:

"Each PRP Unit, immediately upon receipt of its PRP Certificate, shall cancel or reduce its outstanding purchase orders calling for delivery within the quarter covered by such Certificate to the amount of its actual requirements as rated or otherwise authorized on such Certificate or any previous PRP Certificate and not yet received; provided, however, that no person shall be required to cancel any



VICTORY!

A SHORT, SHORT STORY OF
the breakfast table... **AP** dependable valves and YOU!

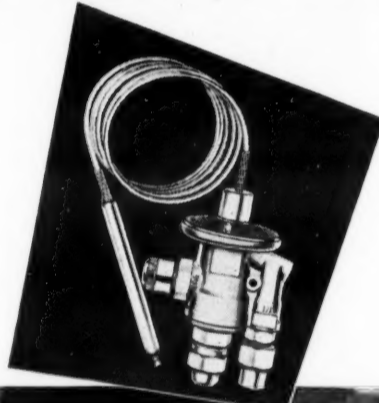
Victory starts at the "breakfast table"—with good nourishing food that puts fight, and courage, and strength into soldiers and workers alike.

Refrigeration Equipment, keeping this food fresh and healthful, is serving an important Wartime duty... And must continue to do so WITHOUT REPLACEMENT PARTS AND EXPENSE if possible.

To YOU, Refrigeration Service Engineers, this offers a distinct challenge to

skill and ingenuity. When you MUST use A.P. DEPENDABLE Valves to help you, your Industry relies upon YOUR judgment in buying these Valves and other parts ONLY AS ABSOLUTELY NEEDED.

It's our Victory effort to see that all metals, materials and man-power be concentrated on Weapons of War. We know you will cooperate.



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MILWAUKEE WISCONSIN
Export Dept. 100 Varick St., New York City



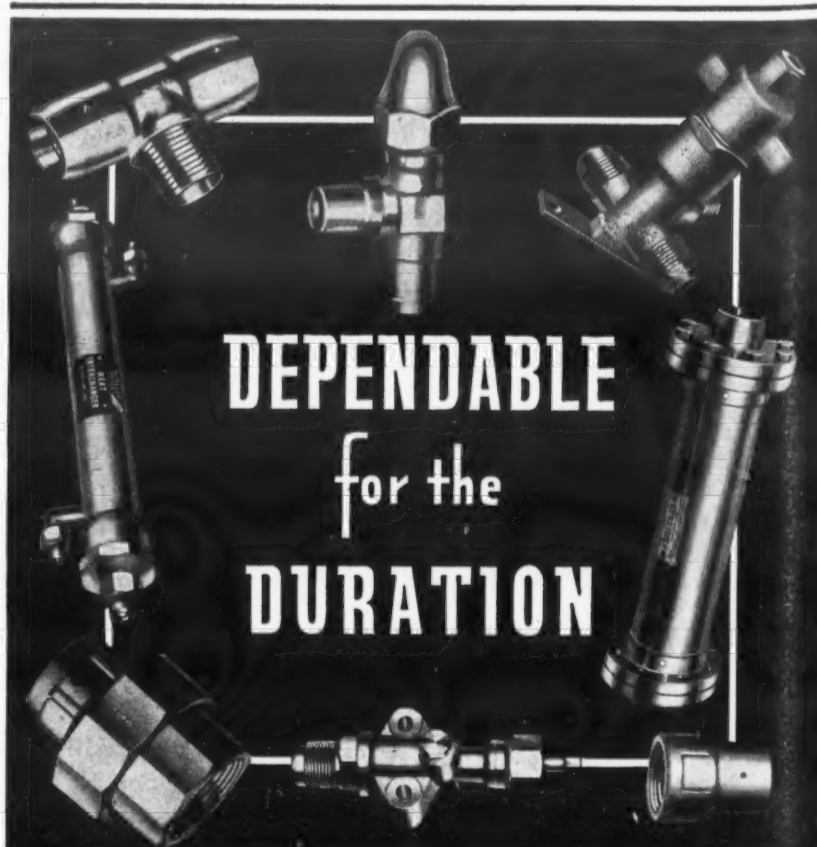
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Refrigerant Valves

Our plant, like all brass and copper mills, is vitally needed in armament production. We're glad and proud to be doing our share. We're proud of the part our customers are taking in this all-out effort—proud of everyone, company or individual, who takes our present emergency seriously and, regardless of its effect on normal business, does everything within his power to further our country's needs.

Naturally, the needs of our armed forces come first, but we can still supply many of the parts you may require. To the extent that we are permitted and where men, machines and material are available, we shall continue to provide standard essentials for the Refrigeration Trade.

Mueller Brass Co. products have a built-in reputation for quality and long service life—dependable for the duration and beyond.

MUELLER BRASS CO. • PORT HURON, MICHIGAN



DEPENDABLE
for the
DURATION

Shipment of Winter Air Conditioners Is Limited by WPB

WASHINGTON, D. C.—The War Production Board has limited shipments of winter air conditioners to orders of the Army, Navy, Maritime Commission, and Coast Guard by action embodied in Limitation Order L-107, which replaces a telegraphic freeze order issued March 24 prohibiting shipment except on specific approval of the Director of Industry Operations.

Other types of space-heating equipment covered by the new order include: unit heaters, unit ventilators, blast heating coils, and convectors. Copper Order M-9-c plus the limited amount of steel tubing available have curtailed the supply of these products, which are made largely from steel, copper, and copper alloys.

Delivery of the listed extended surface heating equipment is strictly prohibited regardless of the terms of any prior commitment or preference rating, except for military or naval services, unless delivery is authorized on Form PD-412a by the Director of Industry Operations.

However, the order does not prevent the delivery of electric motors or controls necessary for repair purposes or the delivery of any repaired heat-transfer element.

All persons affected by the order must file Form PD-467 with the WPB on or before the 15th day of each month, showing all deliveries during the preceding month.

Medical Ass'n Okays Sterilamps For Hospital Use

BLOOMFIELD, N. J.—The American Medical Association has endorsed the use of the Westinghouse Sterilamp as a germicidal agent in operating rooms, hospital nurseries, and isolation wards, Westinghouse officials report.

Tests by the association and clinical evidence showing the use of ultraviolet for air disinfection clinched the association's approval of the Sterilamp. At Duke University experiments by Dr. Deryl Hart using Sterilamps over operating tables to disinfect the air and safeguard open wounds during operations almost eliminated post-operative infections, it is said.

Investigators at the University of Pennsylvania School of Medicine recently reported that their experiments indicate the possibility of controlling contagious diseases by disinfecting the air in schools and other gathering places with ultraviolet. It was disclosed that the new ultraviolet lamps create an invisible wall of germ-killing light around the beds of patients, thus preventing the spread of infection.

Sterilamps set up in hospital corridors erect invisible barriers preventing germs traveling from one ward to another, tests reveal. In nurseries Sterilamps are erected over or near bassinets and are equipped with adjustable shields to prevent exposure of infants to direct ultraviolet radiation. Additional protection is provided in many institutions by installing Sterilamps in the air conditioning system to remove bacteria before the air enters the room.

More than 100,000 bacteria-killing Sterilamps have been installed in industrial plants, restaurants, amusement places, public buildings, and offices to prevent contamination of food and to protect workers from the dangers of infection in crowded areas.

Liquid Carbonic Profit Totals \$175,495

CHICAGO—Consolidated net profit of the Liquid Carbonic Corp here for the quarter ending March 31, are announced to be \$175,495, or 20 cents each on 728,100 common shares of stock after one month's dividend requirements on preferred.

In comparison, the corporation's net profit for the first 1941 quarter totaled \$257,399. Total sales dropped in the first quarter of 1942 with \$4,706,673 this year as against \$5,015,252 last year.

Conditioning Aids In Faster Output Of Black Powder

JACKSONVILLE, Ark.—Carrier air conditioning and dehydrating equipment is helping to do a faster, better job of producing black powder for naval and military war use at the Arkansas Ordnance Plant. This newest major ordnance division will not load shells, but produce bulk powder for shell loading and other uses at Southern munitions plants.

Equipment installed by Ford, Bacon & Davis, engineering contractors who will operate the ordnance plant for two years after building it, consists of one 2,400-lb. 53 C-14 black powder dryer and two 10-lb. supporting silica gel dehydrators. These units, handling different types of powder, are installed on the main production line, and operated with steam activation. Four compressors are used for the 2,400-per-six-hour large dehydrator.

Carrier package air conditioning units are used through the 24 buildings of the plant for comfort and efficiency cooling.

Whitehead Buys Bresco Firm of Baton Rouge

BATON ROUGE, La.—The Bresco Co., Inc., appliance and commercial refrigeration firm here, has been purchased by Martin Whitehead, veteran refrigeration contractor.

Optical Industry Finds Conditioned Air Is Vital Tool in Improving Products And Increasing Output for War

SYRACUSE, N. Y.—The optical instruments industry, now being called upon by the government for increasing quantities of lenses, prisms, mirrors and similar equipment for the armed forces, is finding air conditioning a valuable tool for increasing the speed and quality of production, according to Logan Lewis, vice president of Carrier Corp.

Mr. Lewis lists four major categories in which air conditioning is serving this vital war industry, as follows:

1. To prevent uncontrolled expansion and contraction of material.
2. To provide cleanliness, the requirements for which are frequently extreme and always above average.
3. To minimize perspiration which, if transferred to the finely finished metal mounting, may cause an imperfection.
4. To help standardize processes in order to qualify more individual workers drawn from the same labor radius.

One leading optical company controls temperature in its engraving room within limits of plus or minus one-half degree. Here, engraving exceedingly fine lines on glass, sometimes 200 to the inch, calls for elimination of expansion or contraction of both glass and machine.

The same company utilizes air

conditioning in rooms where grinding and polishing are done and where, in extreme cases, tolerances must be held down to five-millionths of an inch.

Cleanliness and freedom from perspiration required to cut down rejects in cementing and assembly rooms are also provided by air conditioning in this and numerous other optical instrument companies.

George Becomes Army Food Consultant

CHICAGO—Harry B. George, Jr. of Winnetka, Ill., has been named special advisor to the Quartermaster General for the procurement of perishable foods for the Army.

Mr. George will assist in the coordination of purchases of perishable subsistence for the Army. These purchases include all perishable foods.

Mr. George's office will be at Field Headquarters, Perishable Branch, Subsistence Division, Office of The Quartermaster General, Chicago.

Before becoming associated with the Quartermaster Market Center program Mr. George was with the WPB. Before that he was director of purchases of the middle western division of the Great A. & P. Tea Co.

Govt. Handbook Tells Functions of Various U. S. War Agencies

WASHINGTON, D. C.—An "OEM Handbook," describing the functions and organization of the war agencies within the Office for Emergency Management, was issued recently.

The 72-page booklet describes in detail the organization of the War Production Board, the Office of Price Administration, and the other constituent agencies of the OEM. Personnel is listed in most cases down to the branch level in each agency. Included are organization charts of the WPB and the Bureau of Industry Branches of the WPB Division of Industry Operations, as well as a chart showing the relationship of the various Federal war agencies.

Copies of the booklet are available in room 1501, New Social Security Building and from the Superintendent of Documents, Washington, D. C., and at OEM field offices.

U. S. GOVERNMENT
Specification

Filtrine

Cafeteria Coolers
Filtrine Mfg. Co., Brooklyn

"Now let me at 'em! . . .

After a meal like that I'm ready to lick my weight in wildcats. Hurry up, soldier, let's go!"



Good food . . . 6,000 miles from Home

SURE HE'S UP CLOSE. The big guns are barking, machine guns rattling. There's a lot of action and not far away. But he eats. In the far Pacific or in the land of the midnight sun your boy gets plenty of good energy-building food.

Carrier Refrigeration and Air Conditioning equipment is helping America's food industry do this all-important job. Foods are rushed across land in Carrier refrigerated trucks . . . across seas in Carrier equipped ships . . . and stored at bases where the perishables depend on the reliability of refrigerating machines thousands of miles away from a repair shop.

Meats are produced in packing plants air conditioned by Carrier.

Vegetables and fruits are dehydrated to conserve precious shipping space. By removing moisture from the air, Carrier Air Conditioning keeps them rich in vitamins and food values. The soldier's coffee is fresher . . . his cereal crisper . . . through Carrier control of temperature, humidity, and air cleanliness during production.

Aloft, Afloat, Ashore—
this is an AIR CONDITIONED War

Today, Carrier's production is for vital war needs. These needs are spurring the development of completely new refrigeration and air conditioning equipment.

This war-born expansion and practically all the resulting develop-

ments of Carrier Air Conditioning and Refrigeration will have important peace-time applications and mean new sales opportunities for the future after the war is won.

The Navy "E", one of the U. S. Navy's most coveted honors, was awarded to Carrier Corporation for excellence in war production.

Carrier

Air Conditioning

Carrier Corporation, Syracuse, New York
WEATHERMAKERS TO THE WORLD

Air Conditioning & REFRIGERATION NEWS

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Refrigeration Will Help Win the War

L-63 Ties Parts Business In Bowknots

COMING events cast their shadows before them, so they say, and in some recent shadows we can perceive the coming of events which may have tragic consequences.

For example, we note by AIR CONDITIONING & REFRIGERATION NEWS that Harry Alter, largest refrigeration parts jobber in the world, has closed 10 of his 11 branches. He very frankly states the reason as being the restrictions imposed by L-63 and other WPB orders.

PARTS DEPOTS BEING CLOSED BECAUSE OF L-63 ORDER

Also we note that one of the biggest manufacturers of complete refrigeration and air conditioning equipment has closed most of its parts depots. Similar action, one discovers, is planned by other manufacturers.

Net result, of course, will be unavailability of parts for the repair of broken-down food preservation equipment. In time they can be had, if at all, only after laborious efforts and disastrous delays.

Now why is all this closing down of regional supply depots occurring? Answer: Because of the red tape involved in trying to operate under

L-63. To live up to the letter of the law and be prepared for the WPB investigators, every parts supply operator will have to hire extra clerical help, take monthly inventories, and run their business deeply into the red. None of them can afford to do it.

The big difficulty is that L-63 is a "catch-all" order applied to the following industries: automotive, aviation, building, construction, dairy, electrical, farm, foundry, grain elevator, hardware, health, industrial, plumbing and heating, railroad, refrigeration, restaurant, and textiles.

WHY ORDER IS NOT APPLICABLE TO REFRIGERATION INDUSTRY

For many of these industries the order might work without undue hardship. But it won't in the refrigeration business, without causing overwhelming hardship. Here's why:

A refrigeration parts supply station must carry anywhere from 5,000 to 8,000 items, many of them valued at only a few cents apiece. These parts "turn" less than twice a year. Even if they "turned" half a dozen times a year, as they do in some of the foregoing industries, the paper work involved on each part would normally run more than the part itself.

This enormously complicated stockpile is made necessary by the existence of a million or so refrigeration units of the "open type" construction—made in the 1920's and early 1930's, before better standardization and the sealed units had their innings.

These old units are just as important in the job they do as are the newer, simpler ones, especially now that replacement units are so hard to get.

Another hardship of L-63 is that in "inventories" suppliers must include frozen stocks of complete units, plus parts needed for replacement under guarantee periods (which do not count as "sales").

Thus in regard to the availability of repair parts under this formula, somebody is going to get hurt, and that somebody is the user—the mother and her babies, the butcher and his customers, and restaurant and its war-labor clientele.

HEALTH SERVICES EXCEPTED— WHY NOT REFRIGERATION?

Automotive and "health" service parts have recently been separated out from the jurisdiction of L-63, because of equivalent difficulties of administration. We think the line taken with them is admirable, and would solve some of the problems of making refrigeration parts available quickly to those who need them, if the same principles were applied to refrigeration.

This method would be to say to parts manufacturers: "You can manufacture up to 70% of the parts you made in 1940. Do this as fast as you can, then turn your production lines and labor over to war work entirely. You handle the distribution, seeing to it, of course, that none of your depots is allowed to build up excessive inventories."

Obviously this policing of dis-

They'll Do It Every Time By Jimmy Hatlo



tributors is to the advantage of manufacturers, because they want parts available to their machines wherever needed, not just in some locality where a particularly alert jobber had cornered parts supplies. It would end red tape in the field. It would make it unnecessary to hire more clerical help—men and women who would thus be taken away from the labor pool needed by the armament industries. It would also save needed materials.

And most important, it would put repair parts within the reach of those who need them—the American consumers.

All this could be covered very simply by taking refrigeration out from the L-63, just as automotive and health supplies have been. As a matter of fact, refrigeration is "health supply."

WHAT THE WPB WOULD GAIN BY CHANGING ORDER

Thus the War Production Board can kill three birds with one stone:

- (1) Prevent the breakdown of the nation's food preserving equipment
- (2) Conserve the nation's labor supply
- (3) Save materials and money.

Here's a constructive suggestion well worth the immediate attention of the various branches, divisions, sections, committees, processing agents, and individuals of the War Production Board who have some jurisdiction over the refrigeration industry.

LETTERS

CORRECTION IN PRINTING OF L-38 ORDER

Sanitary Refrigerator Co.
Fond du Lac, Wis.

Editor:

Referring to your bulletin edition of June 29, 1942, the article on the amendment to L-38, Item C, Part 1.

We note that this states in part, "after the effective date of this order install any used Refrigerating and Air Conditioning Equipment and no Producer."

Upon referring to our original copy of Limitation Order L-38, we find that the particular word is "unused" instead of "used."

This is a rather important word and we would like to have you advise us whether your records show that a typographical error occurred in your article or whether this word was changed in the amending of Limitation Order L-38 under Amendment No. 1.

HENRY MILLER
Secretary & Treasurer

Answer: It was a typographical error. The word should be "unused" instead of "used."

DEALER QUESTIONS PRICES OF USED REFRIGERATORS

Mason's Appliance Store
Tigard, Ore.

Editor:

We have sent the following letter to the OPA:

Mr. Leon Henderson
Office of Price Administration
Washington, D. C.
Dear Mr. Henderson:

Will your office be good enough to advise me, as a small dealer in electrical appliances, how I can sell used refrigerators for \$46.50, that cost me \$20 trade allowance, plus \$40 for overhauling and painting?

This is not a facetious request. You've ordered it, and it must be possible, else you wouldn't have written the order. The problem is actual and it affects thousands of dealers to say nothing of thousands of customers who need refrigerators, but who cannot buy them from the dealer who hasn't yet learned how to come out on the above sort of a deal.

A. L. MASON

AN ENGLISH SUBSCRIBER RENEWS FOR A YEAR

W. G. Coddon, Ltd.
Marlborough Engineering Works
Blenheim, N. Z.

May 15, 1942

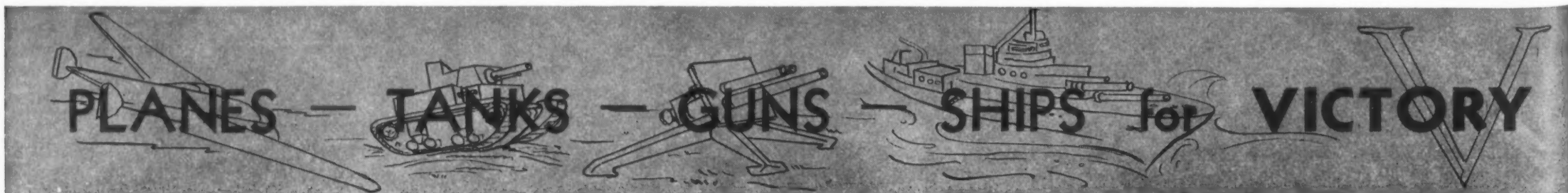
Publisher:

We have to thank you for your letter of 10th February last and very much appreciate your suggestion regarding our subscription to "REFRIGERATION NEWS". We had been told that we could not get Exchange for this but upon receipt of your letter we made very special efforts and now have much pleasure in enclosing a draft for \$6.

We have always found the "News" of great help to us in the refrigeration business and would very much regret having to give it up. We were very much impressed by your letter and feel sure that the same spirit prevails between our two Nations. The war is doing much to further cement this friendship which will become the deciding factor in establishing a permanent peace. We have handled a large amount of American machinery of various kinds and always with very happy results.

Again thanking you for your letter and wishing the "News" every success.

W. G. G. CODDON,
Managing Director



Area Survey Shows War Goods 14 Industry Firms Are Building

A SURVEY made by AIR CONDITIONING & REFRIGERATION NEWS of the activities in War Production of all the manufacturers of refrigeration and air conditioning equipment, and parts for such products, located in one industrial metropolitan area, has revealed the wide range of War products that are being manufactured by firms who in peacetime devoted all, or a good part, of their productive equipment to cooling devices or the parts and pieces for the same.

Censorship regulations prohibit the naming of these companies. Some of the products manufactured by these firms in peacetime included expansion valves, oil separators, fans, blower wheels, steel tubing, copper tubing, controls, condensers, evaporators, household refrigerators, commercial refrigerating machines, display cases, air conditioners, liquid cooling systems, and refrigerant filters.

There are 18 air conditioning and refrigeration manufacturers in the area. All are producing goods that go directly into companies, either because no progress report has been made, or their civilian lines. Data was not available on the activities of some companies, either because no progress report has been made, or because the nature of the product was such that no information could be released on the particular product.

The percentage of total productive capacity being used for the War Effort ranged from 36 to 85% for these plants, with the average being around 70%.

Following is a tabulation of the products being made by 14 of the 18 companies:

Company A	Hydraulic Couplings.
Company B	Fans and Blowers, heavy metal.
Company C	Drill Projectiles; Barrel Bearings; Tank Parts; Turret Parts; Oil Cups; Anti-Aircraft Parts; Generator Parts (Navy).
Company D	Steel Tubing, 3/4" O.D. and smaller.
Company E	Copper and Brass Aircraft and Tank Fittings and Parts.
Company F	Tank Radiator Cases; Gun Parts; Aviation Clutches.
Company G	Refrigeration Expansion Valves and Parts; Airplane Carburetor, Propeller, and Valve Parts.
Company H	Army Helmets and Liners; Flame Traps; Lubricators; Linking Machines.
Company I	Naval Ordnance; Bendix Carburetor Parts.
Company J	Electric Controls.
Company K	Truck Fans; 155 MM Shell Parts; V-Belt Pulleys.
Company L	Photo Developing Units; Machine Work; Refrigeration Accessories; Water Cooling Units; Temperature Control Valves.
Company M	Shells and Shell Parts.
Company N	Carburetor and Parts; Filters, Flame Arresters; Dregs Collectors.

Refrigeration at War

Stratosphere Flying Made Safer by Tests On Plane in -67° Cold Room

SANTA MONICA, Calif. — Pilots of Uncle Sam's dive bombers who travel in the stratosphere until reaching their objectives may now be assured that the camouflage on their planes will not peel off like lint when reaching the ground because of frigid temperatures 35,000 feet above the earth, since Douglas Aircraft Co. built the "coldest refrigerated room in America" at its Santa Monica blackout plant.

According to company designers, a stiff problem in constructing high-flying planes used to be that paint would strip from metal surfaces when these contracted in temperatures of -67° F. common to the stratosphere. When the plane reached a warmer atmosphere, paint would fly off in small chips because of the expansion and contraction of the metal underneath.

Also, controls passing through narrow apertures would "bind" and make the big bombers unmanageable until warmer air allowed them to expand. Worse yet, lubricating oil in the motor, gun-turret electric motors, and other moving parts would stick fast in the chill cold.

Nothing could be done to rectify this series of drawbacks until the Douglas plant solved the problem by building a refrigerated test room which could simulate on the ground the thin-air subzero temperatures of the stratosphere. Here are tested metals, alloys, plastics, paint, glass, oils, and small moving-parts equipment to determine the shrinkage coefficient of each, and to allow for it. Part of the room includes complete test facilities for fuel, oil, hydraulic pressure equipment, insulation, suit heating, bearings, pumps, gears, machine gun mechanisms, etc. Compensating improvements for the cold mean that a pilot whose bomber is a menacing instrument of death at 20,000 feet will not find himself powerless to maneuver at 36,000 feet.

The test room is a small chamber 14 x 16 feet in the center of one of the windowless blackout factories, insulated by 1 foot of fibrous spun glass and cork, and with sealing doors. Temperatures of -104° F. can be obtained in two hours time, from the regular 80° F. prevalent in the air conditioned plants.

Cold is supplied by a series of cold

plates through which are circulated carbon dioxide and methyl alcohol, agitated together under pressure by a centrifugal pump. The mixture passed through a heat exchanger battery quickly drops the temperature 180° if desired, faster cooling than can be accomplished by any other method, according to plant engineers. Exclusive of liquid air and other such laboratory experiments, the room produces the coldest temperatures anywhere in the country.

Electrically-heated, wool fleece lined flying suits for stratosphere pilots have been developed in this room, as well as non-freeze control wires which pass through plastic materials of the same coefficient as the metal wire. Tests in the room have demonstrated that rubber hose connections, no matter how constructed with fabric ply, will snap and crack open at these temperatures. Tires which wear out in a few landings because of this feature are now being replaced with a type which will withstand -150° F. temperatures without damage.



WHITE-RODGERS

EXPLOSION-PROOF

THERMOSTATS

Underwriters Approved

Designed as a safeguard to life and property, White-Rodgers Explosion-Proof Thermostats are now available for refrigerating, air conditioning and heating applications where hazardous conditions exist.

Both self-contained and remote-bulb controls are offered in standard ranges with external knob or tamper-proof internal adjustment.

Especially recommended for use in oil refineries, munitions plants, cleaning plants and all locations where explosive fumes or dusts are present.

WHITE-RODGERS ELECTRIC CO.

Controls for Heating · Refrigeration · Air-Conditioning

12119 Cass Avenue . . . Saint Louis, Missouri

McCray Builds Regular Plus Special Lines For War Effort

KENDALLVILLE, Ind. — McCray Refrigerator Corp., manufacturer of commercial refrigerators, reports that it is supplying many of its regularly manufactured items as well as special non-refrigerator products for the War effort.

At certain times during the past 18 months a major portion of the plant capacity on refrigerators has been used in the production of refrigerators for various branches of the armed services.

Among the types of equipment furnished have been refrigerators of various sizes up to 60-cu. ft. capacity, in both metal and wood exterior; portable, self-contained coolers, beverage cooling equipment, and mortuary cabinets.

In the line of non-refrigerator equipment McCray has produced

thousands of maple tops on sub-contracts and has done large quantities of annealing work in its porcelain ovens.

FREEZING WHILE DEFROSTING



WATER **DEFROST**

FOR FRESH METHYL CHLORIDE SULPHUR DIOXIDE AMMONIA, AND BRINE

PATENTED U.S.A. 2,015,101 CANADA 2,104,000 NEW ZEALAND 22,520 OTHERS PENDING

REFRIGERATION ENGINEERING, INC. Los Angeles, California, U.S.A.



DU PONT

Artie

For information about nearest source of supply, write to
ELECTROCHEMICALS DEPARTMENT
E. I. DU PONT DE NEMOURS & CO. (INC.)
Wilmington, Delaware
OF National Ammonia Division
Frankford P. O. Philadelphia, Pa.

**TO ASSURE QUICKER DELIVERIES
RETURN EMPTY CYLINDERS PROMPTLY!**

There is a shortage of cylinders for refrigerants. If you will return your "Artie" Methyl Chloride containers as soon as empty, your deposits will be

repaid immediately—and you will prevent delays in shipments of "Artie" to your shop! Round up any empties you have now and ship them back!



Price Ceilings on Services Set Maximum at March Levels

Electrical Appliance Repairs and Food Locker Rental Included in Consumer Service Order

(Continued from Page 1)
supplied in the course of commerce and industry. These facts were recognized at the time the General Maximum Price Regulation was developed and were a consideration in delaying to July 1 the effective date of the retail service ceiling.

"Those who render these consumer services have an important wartime public duty. They are asked as a matter of duty to abide by rules laid down by their Government for the common good. They are asked as a matter of duty to abide by a standard of prices similar to that laid down for the sellers of commodities—ceiling prices at the highest levels of last March."

While retail sales of services are the focal point of today's regulation, the new order goes beyond the retail level by defining a "consumer service" as "any service when sold to an ultimate consumer other than an industrial or commercial user, whether sold directly or through any other person to such ultimate consumer, or integrated with further servicing sold to the person with whom such ultimate consumer contracts." The phrase "integrated with further servicing" brings within the scope of the new regulation such operations

as wholesale dry cleaning on behalf of a tailor shop—whether or not the wholesale dry cleaner or the tailor presses the garment being "serviced."

Another example would be electrical repairs done by a big shop on behalf of a number of small independent retail electrical shops.

Outstanding features of the new consumer service regulation include:

1. The automatic licensing, effective July 1, of all persons covered. This is the same type of licensing as was provided in the General Regulation; that is, no physical evidence of license is issued, but all sellers of the consumer services covered are nonetheless licensed and subject to OPA action for revocation in the event of violations.

2. A provision permitting sellers of seasonal services—rental of beach equipment at a summer resort, for example—to determine their maximum prices by (a) taking the highest price charged in the corresponding season of 1941 and (b) adding an amount arrived at by multiplying that price by the percentage increase in the cost of living between last season and March, 1942. A table showing these percentage increases is part of the regulation.

3. Provision for prompt adjustment upward of the March ceiling prices of any seller of consumer service who can prove he is suffering substantial hardship because his top prices do not reflect cost increases between Feb. 1 and April 27, 1942, and that continuance of his service is threatened.

Consumer Services Covered

A list of the consumer services covered by the new regulation would fill pages of type. A detailed description of them literally would fill a book, says the OPA.

For purposes of illustration, a summary of the better known consumer services—none of which may be sold from July 1 on at higher than ceiling prices—follows:

Shoe shining and repairing.
Pressing, alteration and repair of garments.

Automobile service, storage and repair (including parking lots)

Repair of electrical appliances including radios

Food locker service and rental
Upholstery and furniture repair

Fur repair and storage
Film developing and printing

Storage of furniture and household goods

Clock and watch repair
Floor waxing and sanding

Mortician services.

This list only suggests the importance of the new regulation to the buying public. Many other important services are covered by the ceiling, such as household repairs of all kinds done by the "job" rather than by direct employment of the workman. Thus, a contract for re-roofing a house that named a

price for the entire job would be covered, whereas if the householder bought the roofing material and employed a roofer to lay it, the repair would not come under the regulation.

An accompanying amendment to the General Maximum Price Regulation amends the definition of the term "commodity" to omit therefrom the words "but does not include real property." The rewritten definition has the effect of making it clear that all services rendered in connection with a commodity, even though related to real property, are covered either by the General Regulation or the new consumer service regulation, except for those which are specifically excluded.

Maximum Prices

Mechanics of establishing maximum prices for consumer services under the new regulation are fundamentally the same as those contained in the General Maximum Price Regulation. As a result, each seller may have a different price for the identical service simply because his highest March price differed from that charged by his competitors.

The experience of getting different prices quoted by different service establishments for the same job, be it radio repair or auto overhauling, is too common to require comment. All the regulation does, in effect, is to set the highest March price of each seller as his individual ceiling.

Each service establishment is considered an "individual seller" under the regulation, even though a group of establishments may be under common ownership. Each unit in a chain of shoe repair stores, for instance, has its own maximum prices based upon the highest prices charged last March.

According to the regulation, the maximum price that can be charged by each seller of a consumer service shall be the highest price charged by him during March, 1942 for the same service or for a similar consumer service most nearly like it.

By "highest price charged," that regulation means two things:

1. The highest price charged for the same or a similar service actually supplied to a purchaser of the same class during that month, and

2. If the seller did not actually supply the same or a similar consumer service during March, then his highest offering price for supply of the service during that month.

Customary allowances, discounts or other price differentials cannot be changed, except to lower the price. For example, a tailor who in March, 1942 customarily granted discounts to professional entertainers for pressing and cleaning because of the volume of work provided, must now continue to do so, while his maximum price to non-professional consumers may be higher.

The second meaning of "highest price charged," that is, the use of an offering price as the maximum, can only be applied if no same or similar service actually was supplied during March and, in addition, any

discounts or allowances that applied to the March offering prices must be continued. The offering price, in any event, cannot be a fictitious one used merely to open bargaining or turn away trade because of a rush of business.

If a seller did not supply the same or similar consumer service during March, 1942, he must use as the maximum the highest price charged during that month by the most closely competitive seller of the same class either for the same service or for a similar service. This is designed to take care of service establishments that did not happen to supply a particular service during the month of March because they opened after that date, undertook a new operation or resumed an old one, or for any other reason.

The word "similar" as applied to a consumer service in the new regulation means a service having the same use and purpose and belonging to a type which ordinarily is supplied for about the same price.

Because of the broad scope of the consumer service field, still another pricing method is given for sellers who neither supplied the same or similar service during March, nor have any closely competitive sellers from whom to obtain maximum prices. These sellers are directed by the regulation to base their ceiling price on the price charged for a "comparable" consumer service during March.

A "comparable" consumer service is one with the same use and purpose and is customarily priced by the same pricing method. Its price may be greatly different from the service to which it is "comparable" because of differences in materials and performance time.

For example: removal of a small dent from an automobile fender is "comparable" to straightening out a badly damaged fender. If, under these conditions, the repair shop in March customarily charged at a certain hourly rate for the time taken to perform the work and added another charge for the lacquer on the basis of the quantity used, this would provide the "method of pricing" which must be used to determine the maximum price for the bigger job. The charge for materials and the charge for work time, in this case, must be limited to the highest rates charged for the "comparable" job in March 1942.

Because there may be consumer services that cannot be priced by any of the foregoing methods, the regulation includes a separate provision which states that in these cases the seller's maximum price shall be determined by applying the pricing method for any other service or type of service supplied by him during March, 1942. However, it is stipulated, this maximum price shall not exceed the sum of the following:

1. Direct labor cost, using the highest applicable wage rate paid in March, 1942 by the seller. If he had no wage rate during March, he must use the highest wage rate for each type of employee paid by his competitors in the same area during March.

(Concluded on Page 15, Column 1)



The refrigeration industry plays one of the most vital parts in "Production for Victory."

Food must be kept fresh and nourishing from farm or ranch to its final destination—whether it be our armed forces at home, on the sea, or at our far-flung outposts; our hundreds of thousands of skilled workers turning out planes, tanks, ships and guns; or our families at home.

Where it is essential to control atmospheric conditions to insure uniformity and accuracy in the manufacture of precision equipment, factories must be air-conditioned.

Everywhere, Detroit expansion valves and controls are on the job, day in and day out, accurately controlling thousands of refrigeration and air conditioning installations which are so important to the War effort.

But that is only part of the story. Detroit lubri-

cators keep locomotives rolling smoothly, swiftly, with their precious loads of refrigerated food and War materials. Detroit controls are constantly on guard in power houses, pumping stations, on ships and trains, protecting giant engines against damage due to inadequate cooling or lubrication. Detroit heating controls are keeping private homes, Army camps, hospitals and factories comfortable and healthful during the long winters, and so it goes—neither patriotism nor space permit us to tell all the important jobs which our products are doing in guarding the health and the life-lines of our Nation.

The rest of the story is this—we are diligently working, night and day, making (censored) for the Army, Navy and Air Corps.

Detroit Lubricator Company is proud of its part in

"Production for Victory"

DETROIT LUBRICATOR COMPANY

General Offices: DETROIT, MICHIGAN

Canadian Representatives—RAILWAY AND ENGINEERING SPECIALTIES LIMITED, Montreal, Toronto, Winnipeg



PENN

BRASS & COPPER COMPANY, INC.

POWELL AVE. ★ ERIE, PA.

Seamless Brass and Copper Tubing

Consumer Service Ceiling Provides Methods For Securing Relief if Rate Is Too Low

(Concluded from Page 14, Column 5)

2. Cost of material to him. This material cost, of course, must not exceed the maximum price established by OPA, regardless of what the supplier of the service may actually have paid. If the material has no maximum price, the seller must not charge more than the highest price which he, or a purchaser of his class, had to pay for the material in March, 1942.

3. A mark-up over labor and materials cost equal percentagewise to the mark-up he made on the consumer service or type of consumer service which accounted for a greater portion of his March gross income than any other consumer service.

From the sum thus obtained there must be deducted all discounts and other allowances granted during March, 1942 to a purchaser of the same class.

Seasonal Consumer Services

There are many consumer services that are purely seasonal or whose prices vary with changing seasons. In summer resorts, for instance, especially those that are open all year round, service prices rise and fall depending upon the volume of resort traffic. For example: a dry cleaning establishment in a resort center may have as many as four different prices for the same service at various seasons of the year.

The new regulation recognizes the nature of seasonal services and provides a unique method by which each seller of these can determine his maximum prices.

In the case of a consumer service for which there is a regularly established seasonal variation in price, the regulation states, a seller's maximum price shall be the highest price he charged in the corresponding season of the year ended Feb. 28, 1942, for the same or similar consumer service, plus an amount equal to that price multiplied by the percentage increase in the cost of living between the end of the corresponding season and March, 1942.

The regulation contains a "cost of living" table expressing in percent-

ages the increase in living costs month by month over the year ended Feb. 28, 1942. This table follows:

Percentage	Period
12.9% (.129)	March 1, 1941 to April 14, 1941, incl.
11.8% (.118)	April 15, 1941 to May 14, 1941, incl.
11.1% (.111)	May 15, 1941 to June 14, 1941, incl.
9.3% (.093)	June 15, 1941 to July 14, 1941, incl.
8.5% (.085)	July 15, 1941 to Aug. 14, 1941, incl.
7.6% (.076)	Aug. 15, 1941 to Sept. 14, 1941, incl.
5.7% (.057)	Sept. 15, 1941 to Oct. 14, 1941, incl.
4.6% (.046)	Oct. 15, 1941 to Nov. 14, 1941, incl.
3.7% (.037)	Nov. 15, 1941 to Dec. 14, 1941, incl.
3.4% (.034)	Dec. 15, 1941 to Jan. 14, 1942, incl.
2.1% (.021)	Jan. 15, 1942 to Feb. 14, 1942, incl.
1.2% (.012)	Feb. 15, 1942 to Feb. 28, 1942, incl.

As an example of how the seasonal variation pricing method would apply in an actual case: A garage at an all-year-round Atlantic Seaboard resort charges 75 cents for a greasing job from October to the following April, the dull season. In April and through June, this same job is priced at \$1. The price rises to \$1.50 at the peak of the season—July to Labor Day—and then falls back to \$1 from Labor Day to October, when the 75-cent rate again goes into effect. If this scale of prices applied during the year ended Feb. 28, 1942, the garage would set its maximum prices under the seasonal section of the new regulation.

Applying the appropriate line of the table to the peak July-Labor Day price of \$1.50, the garage could add 11 cents and raise the maximum to \$1.61. The post-peak season price of \$1, between Labor Day and October could be increased to \$1.06. The price from October, 1942 to April, 1943, could be increased to 85 cents.

Application for Adjustments

Sellers of consumer services can apply to any regional office of the OPA for an adjustment of their maximum prices as established in the consumer service regulation in two different situations.

The first situation is one which is recognized by an almost identical provision in the General Maximum Price Regulation and states that any seller who finds that his maximum price is abnormally low in relation to those for the same or similar consumer service sold by others and that this abnormality subjects him to sub-

stantial hardship may apply for an adjustment.

The second situation is intended to provide relief in cases where increases in costs occurred or were incurred between Feb. 1 and April 27, 1942, and were not reflected in the seller's March prices.

It is this second situation that marks a distinct difference between price control as it affects consumer services and as it affects commodities or services to industry or commerce.

Stated briefly, this distinction lies in the fact that the burden of any increases in costs that may have occurred, or have been incurred, during the Feb. 1-April 27, 1942 period in businesses engaged in the sale of commodities and industrial services, can be spread among producers, manufacturers, wholesalers, jobbers, and retailers. Under similar circumstances, however, the seller of consumer services must bear the full burden alone. In the absence of any special provision to permit adjustment of their maximum prices where substantial hardship can be proven because of higher Feb. 1-April 27 costs, many consumer service establishments, confined to their highest March prices, would be forced out of business almost immediately.

Specifically, in this connection, the new regulation states that any seller may apply for an adjustment if his maximum price as established subjects him to substantial hardship because his March price did not reflect cost increases incurred between Feb. 1, 1942 and April 27, 1942. These incurred costs may include any wage increase given after April 27, 1942, under a collective bargaining contract, or other wage agreement, that

was entered into on or before that date, and which provides for an unconditional raise by a fixed amount or percentage. Such a seller also must be prepared to prove that these cost increases cannot be absorbed and that they threaten the continued supply of his consumer service.

Temporary Procedural Regulation No. 5, which is being issued simultaneously with the consumer service regulation, contains a form on which applications for cost increase adjustments may be filed with Office of Price Administration regional offices.

Among other things, this form instructs the applicant to file a separate application to cover the price of each service for which an adjustment is sought. It requires a description of the type of business; the type of operation; a price history of the service; a listing of discounts, allowances, etc., in effect in March; the names, addresses and prices of the five closest competitors, and data on costs of labor and materials.

Prices

All sellers of consumer services are required to keep existing records relating to actual prices charged during March, 1942 (both of completed transactions and offering prices), as well as the pricing methods used.

In addition, each seller must prepare on or before Sept. 1, 1942 and keep in his establishment for examination by any person during ordinary business hours, a statement showing the highest prices he charged for consumer services supplied during March, 1942 for which prices were regularly quoted in that month; the pricing method, if any,

which he regularly used during March, 1942 and all the customary allowances, discounts, and other price differentials.

A duplicate of this statement must be filed on or before Sept. 10, 1942, with the War Price and Rationing Board having control over his area.

The new regulation contains no price posting requirements.

Particular attention is called to the distinction between consumer services and services to industry and commerce as it affects record keeping and price filing. The General Maximum Price Regulation still applies to industrial and commercial services and contains record keeping requirements that are separate and distinct from those set forth in the Consumer Service Regulation.

However, a service establishment that sells both industrial and commercial services and consumer services will, by complying with the record keeping requirements of the General Maximum Price Regulation, automatically comply with practically all of the requirements of the new Consumer Service Regulation. The only additional duties imposed by the new order are those of stating the pricing methods used and of filing the price lists with the War Price Board before Sept. 10, 1942.

Penalties

Penalties that the Emergency Price Control Act provides for violations of the Price Administrator's regulations, orders, etc., include fines of not more than \$5,000 or one year's imprisonment, or both; civil suits for treble damages (these suits may not be brought until July 31, 1942), and revocation of the seller's license for not more than 12 months.

There Is No Substitute For Experience

How Servel Serves the Services of
COMBAT & SUPPLY

SERVEL'S great factories have been rearranged and retooled so that a major portion of machines, manpower and management may be devoted to the production of weapons of war

Prime contracts and sub-contracts for large quantities of special war products for use by our Army and Navy are being executed with all the precision and speed for which Servel has long been famous.

Increased personnel, longer hours and additional shifts will shortly raise Servel's output of important materiel to new peaks.

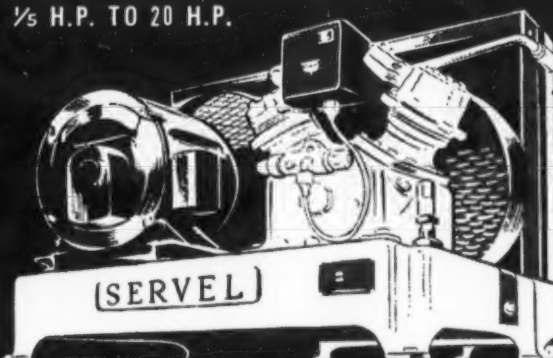
LOOKING FOR A PROVEN LINE? The disruptions caused by the war are necessitating a realignment of distribution in some sections. Responsible concerns interested in a proven line of condensing units are invited to wire or write to Servel, Inc., Electric Refrigeration and Air Conditioning Division, Evansville, Indiana.

SERVEL'S commercial condensing units are also helping to hold the lines of supply which make war production possible.

In important industrial plants, these machines are supplying exact, dependable temperature control for the development, fabrication and testing of vital war equipment.

In essential food plants, these machines are aiding in the processing and preservation of the foods which keep the nation's war workers fit and strong.

OVER 80 STANDARD MODELS —
AIR-COOLED AND WATER-COOLED
½ H.P. TO 20 H.P.

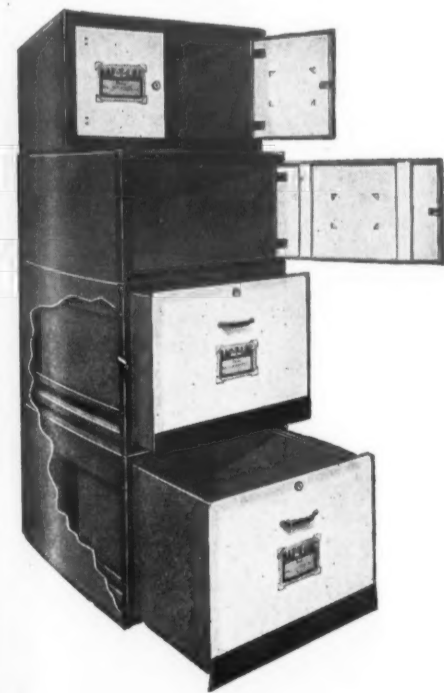


SERVEL
COMMERCIAL REFRIGERATION
and
AIR CONDITIONING

46% Of Iowa Farmers Can't All Be Wrong

Recent surveys show that 46% of the Iowa farmers use local food processing and storage plants for storing their perishable foods—a real contribution to the war effort by conserving tin, rubber and transportation facilities.

Others, in the nearly 4,100 plants in the United States, are doing their bit by preserving more than 600 million pounds of food during 1942.



MASTER Lockers Predominate

In the majority of these plants you will find MASTERbuilt Lockers. There is a reason! Find out why by getting our folder "The Choice of the Industry" sent postpaid on request.

Endorsed by and sold only through distributors of refrigeration and insulation.

MASTER REFRIGERATED LOCKER SYSTEMS, Inc.
121 Main St. Sioux City, Iowa

Over 300,000 Masterbuilt Lockers in Use

IN WAR OR PEACE SPECIFY



COMMERCIAL REFRIGERATORS

SRCA Chairman



E. A. TERHUNE

Compressor Manufacturers Complete Standards

(Concluded from Page 1, Column 3)
Products Co. and F. E. Jernberg of Mills Novelty Co. Mr. Smith is the retiring chairman. R. Kennedy Hanson is executive secretary.

Major project of the SRCA during its first year was the codification of a program of standards for the commercial refrigeration industry, which standards were ratified by representatives of the industry last week.

When approved by Washington, these standards will appear in AIR CONDITIONING & REFRIGERATION NEWS.

Some Service Men Given Deferments

(Concluded from Page 1, Column 5)
or interest, or (b) the War Production program.

2. He cannot be replaced because of the shortage of persons with his qualifications.

3. His removal would cause a serious loss of effectiveness in such activity.

Deferments last six months (or less) and will not be continued longer unless an employer can prove that he has made a reasonable but unsuccessful effort to secure or train a replacement.

The registrant or his employer may make the request for the deferment.

When an individual is first claiming occupational deferment, Form 42A should be obtained from the local board and the following range of information presented:

1. Reasons why the company's operation is necessary to the national health, safety, and interest, or to the War Production program.

2. A specific description of the work the registrant performs and how his work contributes to the continuation of operations of your company.

3. The number of employees who perform the same work.

4. The number of registrants who are performing the same work.

5. The availability of replacements.

6. The number of individuals in training for this particular occupation.

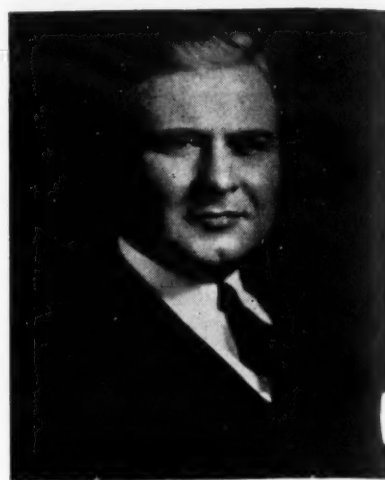
After classification but before induction it is still possible to obtain an occupational deferment.

Appeal can be made to the Board of Appeal under these circumstances. Appeal should be taken within 10 days of the date when the registrant's notice of classification was made.

Appeal may be made in either of two ways—by filing a written notice of appeal with the local board, or by signing the "Appeal to Board of Appeal" on the Selective Service Questionnaire (Form 40) at the local board office.

A statement calling attention to any information which the registrant believes the local board has overlooked, or to which it failed to give sufficient consideration, may be attached to either form of appeal.

Carrier President



CLOUD WAMPLER

Carrier Reports 98% Of Work on War

(Concluded from Page 1, Column 4)
Mr. Wampler becomes president of Carrier Corp. at a time when the business of the corporation is the largest in its history, the present backlog of unfilled orders being more than double that of a year ago. Orders booked during the first seven months of the fiscal year, Nov. 1, 1941 to May 31, 1942, totaled \$18,023,582, or more than 40% greater than the volume of the corresponding months last year.

At the present time, more than 98% of Carrier's business is for war purposes. Major air conditioning and refrigeration installations indispensable to war production are being installed in plants devoted to making synthetic rubber, precision instruments, aircraft engines, textiles, and ammunition. Also the company is manufacturing large tonnages of marine refrigeration and, in addition one third of its plant capacity is now being used for the manufacture of special war products that are outside the regular lines.

Par Sales Manager



W. C. WHITE

White Succeeds Allen As Par Sales Manager

(Concluded from Page 1, Column 2)
society in Chicago, a position that he resigned after a 24-hour term in office, because of the fact that he was leaving the industry.

"Wally" White, the new "Par" sales manager, is widely known in the industry, having been associated with the company since it started in business. He began as representative in Iowa, Wisconsin, and Minnesota, and, for the past two and one-half years, has been district manager of the middle western territory.

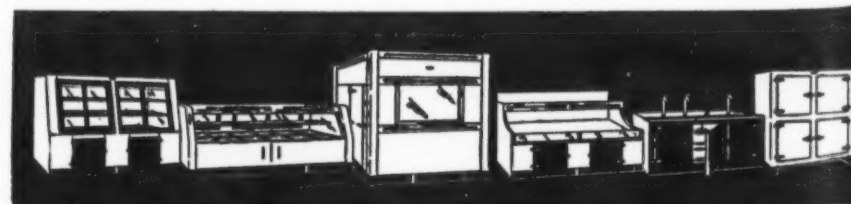
Canadian Firm Fined For Building Boxes

MONTREAL, Que.—In the first case of its kind in Canada, General Metals Products, Inc. was fined \$1,000 and \$500 by Judge Edouard Archambault in Police Court here on two counts alleging violation of the Dominion Refrigerator Order for manufacturing 400 metal-clad refrigerator cabinets without having first obtained a permit from the Controller of Supplies.

Hugh O'Donnell, K. C., counsel for the Federal Government, alleged that the company had been obliged to make a report of the steel on hand, but instead had gone ahead and cut up the metal for the manufacture of the cabinets, although they did not have the required permit for this work.

Although pleading guilty on both charges, attorneys for General Metals claimed the company was only guilty of a technical violation of the law and had pleaded guilty in order to clear the matter up so that a permit could be obtained to complete manufacture of the cabinets.

Steel required for the work, it was contended, had been obtained in April, 1941, while the order fixing a quota for the number of such cabinets which could be made had only come into force this January.



COMPLETE LINE OF COMMERCIAL REFRIGERATORS FOR EVERY MILITARY AND CIVILIAN NEED.
LARGE STOCKS FOR IMMEDIATE DELIVERY.
SPECIAL QUOTATIONS FURNISHED ON GOVERNMENT BUSINESS.
WRITE FOR LIST OF LOW-PRICED "SPECIALS" ON USED EQUIPMENT AND BRAND NEW PRIOR MODELS.

FOGEL REFRIGERATOR COMPANY Since 1899
Philadelphia, Penna.

FAMOUS LIFE LINES



1 ICELAND, pivot point of our life line of North Atlantic bases, is swept by hundred-mile gales such as this which caused a United States supply ship to drag its anchor in the mountainous seas off the rocky coast.



2 THIS HALF TRAC PERSONNEL CARRIER'S life lines, its oil lines, fuel lines and hydraulic brake tubes, are made of Bundy Tubing, standard in war, as in peace, for strength, ductility and resistance to vibration fatigue.

EACH day brings new uses for Bundy Tubing in military and naval equipment. As army experts develop new types of military vehicles, the automotive industry automatically turns to Bundy for brake tubes, fuel lines and oil lines.

The Ordnance Department needs magnesium parachute flares—Bundy Tubing is selected for shade rib supports. The Air Corps, Quartermaster Corps and Marine Corps order hundreds of thousands of expeditionary gasoline cans—Bundy furnishes the air vent tubes.

Mechanical parts for lamps for the Medical Corps; fuel and lubrication lines for Diesel engines for small naval vessels; antennae for Signal Corps radios; oil,

fuel and hydraulic lines for tandem rollers for the Engineers—these are just a few examples of Bundy contributions to every branch of the service.

Wherever fuel or lubricants must be carried, wherever vacuums are necessary or hydraulic pressure is transmitted—there you will find Bundy Tubing, selected for its strength, its ductility and its resistance to vibration fatigue. And in hundreds of mechanical and structural applications, where light weight and strength are essential, Bundy Tubing is a first choice.

If your war orders require tubing in or near Bundy's sizes, you should have the complete Bundy story. Bundy Tubing Company, Detroit, Michigan.

BUNDY TUBING



BUNDY WELD double-walled steel tubing, hydrogen-brazed, copper-coated inside and outside. From Capillary sizes up to and including 12" O. D. This double-walled type is also available in steel, tin-coated on the outside, and in Monel.



BUNDY ELECTRIC WELD steel tubing. Single-walled — butt welded — annealed. Also furnished tin-coated outside if desired. Available in sizes up to and including 36" O. D.



BUNDY "TRIPLE-PURPOSE" MONEL tubing. Double-walled, rolled from two strips, joints opposite, welded into a solid wall. Available in all Monel, Monel inside — steel outside, and Monel outside — steel inside. Sizes up to and including 36" O. D.

Questions & Answers —

What Consumer Services Are Affected by Price Ceilings; How Maximum Is Fixed

Official OPA Answers to Queries on New Regulation

WASHINGTON, D. C.—The Office of Price Administration has issued an official "question and answer" statement on the maximum price regulation for the "service" industries.

Q. What is the maximum price regulation for consumer services?

A. A separate price regulation placing a ceiling on consumer services.

Q. What is a consumer service?

A. A consumer service under the regulation is a service rendered in connection with a commodity for the ultimate consumer such as the housewife, motorist or the farmer. But consumer service as used in this regulation does not include an industrial or commercial service, the ceiling prices for which were set by the General Maximum Price Regulation and became effective last May 11.

Q. What are examples of consumer services?

A. Laundry, dry-cleaning and shoe repairs are some of the most common services performed for consumers. Others are the lubrication or repair of a private passenger car, the developing and printing of amateur films, the repair and servicing of home radio sets and electrical appliances, and the sharpening of household knives and scissors.

Q. What are examples of industrial or commercial services, which remain under the General Maximum Price Regulation?

A. The sponging and shrinking of cloth after it has left the manufacturer and before it has been sold for cutting into garments; the services of a stevedoring company, and the warehousing of products on the way from a mill to a retail store.

Q. What are the maximum prices on consumer services?

A. The highest prices which the supplier of the service charged in March, 1942.

Q. Are prices on services standardized by this regulation?

A. No, the regulation simply places a ceiling for each establishment at the highest price it charged for a service in March, 1942. But ceiling prices will vary from shop to shop just as uncontrolled prices varied in March.

Q. If a dry cleaner charged 59 cents to clean and press a man's suit all through March, is that the highest price he may charge under regulation?

A. Yes, 59 cents is the highest price which this dry cleaner may charge. But another dry cleaner who charged 75 cents for the same type of cleaning in March will have a ceiling price of 75 cents.

Q. When do maximum prices for consumer services become effective?

A. On July 1. On and after this date, no persons furnishing the consumer services covered by the regulation may supply services above the maximum prices.

Q. May prices be charged below the ceiling?

A. Yes, the regulation does no more than place a top limit beyond which prices cannot go.

Q. Some members of a chain of shoe-repair shops during March made a special rate of 75 cents for half-soling men's shoes. Other members of the chain held to the customary price of \$1. What is the ceiling price in these establishments?

A. The ceiling price has nothing to do with the ownership of the store or service business. The ceiling price is determined for each separate establishment on the basis of the highest price which it charged for a service supplied during March. For any stores which cut the price to 75 cents during the entire month the ceiling is 75 cents. For those who sold as high as \$1, the ceiling is \$1.

Q. What about the charges of a garage for the repair of a private automobile? Is there a ceiling on the rate for a standard repair job, such as a motor tune-up?

A. Yes, if the garage in March made a standard charge of, for example, \$3 for a motor tune-up, that is the highest price the garage may charge for a motor tune-up after July 1. If it is a commercial vehicle, the General Maximum Price Regulation applies and sets the ceiling also at highest March levels.

Q. What control is there over the price if the service establishment did not charge a flat price for a consumer service?

A. In this instance the ceiling is determined by the pricing method, rates and charges adopted in March, 1942.

Q. Then if a garage charged \$2 an hour in March for work by a mechanic and this charge included profit, overhead and the use of tools, as well as labor, the garage may not charge above \$2 an hour after July 1.

A. That is right.

Q. Is any provision made for determining the ceiling prices on seasonal services (such as sharpening skates) which were not generally rendered during March?

A. Yes, for such services the maximum charge is the highest charge made during the last season, plus an adjustment for the percentage increase in the cost of living between the time of the last service and March, 1942. A table of living cost rises is included in the consumer service regulation.

Q. A tennis racket shop made a practice of granting a 10 per cent discount on rackets restrung for a college team. This discount was in effect in March. Must it be continued?

A. Yes, a seller may change his customary allowances and price dif-

ferentials only if the change reduces the selling price.

Q. Under what circumstances may the seller of a consumer service apply for relief?

A. If a substantial hardship results from either of two circumstances: (1) if the seller's price was abnormally low in relation to the prices of his competitor and other sellers in the vicinity; or (2) if the seller's costs increased between Feb. 1 and April 27, 1942—the 90-day period before the announcement of the universal price ceiling.

Q. What are the provisions about licenses?

A. Every person selling a consumer service is automatically licensed under this regulation, and every new seller automatically is licensed. There is no certificate or other actual license, but the seller is licensed nevertheless.

Q. What is the purpose of the license?

A. It is a method of enforcement. If a seller, after a warning from OPA, violates the regulation, a court of proper jurisdiction may suspend the license for as long as 12 months. Without a license it is illegal to sell services which are under this regulation.

Q. Must a service establishment post any ceiling prices in a manner similar to the "cost-of-living" posting rules of the General Maximum Price Regulations?

A. No, the regulation does not require any service establishment to display a list of the ceiling prices?

Q. But does not the consumer service establishment have to make some list or report of its ceiling prices?

A. Yes, every person supplying a

consumer service over which this regulation sets a price ceiling must prepare by Sept. 1 a complete list of the highest prices he charged for all services he supplied during March for which prices were regularly quoted in that month. This report must also show any pricing method regularly used in March, and all customary allowances and discounts.

Q. Is this list open to inspection?

A. Yes, on and after Sept. 1, 1942, it must be available to anyone during business hours. A copy must also be filed with the local War Price and Rationing Board by Sept. 10. However, a person selling a consumer service other than at retail need file only the statement with the War Price and Rationing Board, if the statement is accompanied with an affidavit that disclosure would result in substantial injury.

Q. An establishment sells industrial and commercial services, ceilings for which are determined under the General Maximum Price Regulation. It also sells consumer services, ceilings for which are determined under the maximum price regulation for consumer services. Does the establishment have to prepare two statements of ceiling prices, one to satisfy the requirement of each regulation?

A. No, one statement is sufficient if it contains all the information required by the two regulations.

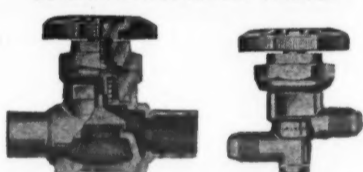
AMINCO OIL SEPARATORS

1-3 h. p. to 120 Tons

American Injector Company
1481 14th Avenue, Detroit, Mich.Superior PRODUCTS ***
*** FOR YOUR Defense JOBS

Increased refrigerated space for the accelerated production of perishable foods places a heavy responsibility upon the refrigeration industry. Shortage of metals demands waste and inefficiency. Do your part to conserve materials. Design to produce more refrigeration per watt hour. Select equipment which requires a minimum of service. Specify SUPERIOR — the quality buy-word of the industry.

DIAPHRAGM PACKLESS VALVES



Entire internal assembly removable for soldering or inspection. Equipped with famous pressure cup below diaphragm. Two and three way. Flare sizes 1/4" to 3/4"; sweat sizes 1/4" to 3/4".

PACKED AND PRESSURE CUP VALVES



Flare and sweat sizes 1/4" to 3/4" (two and three way) have hex seal cap. Sweat sizes 1/4" to 3/4" (globe) have wing nut seal cap. Internal assembly (all sizes) removable for sweating to valve body.

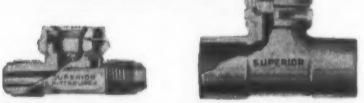
★ Refrigeration is Vitrally Essential to Our National Defense Efforts ★

CHECK VALVES



Very sensitive springs. Less than 5 ounces pressure drop. Positively will not chatter or hum. All internal parts easily removable for sweating or inspection. Sizes 1/4" to 3/4" Flare 1/4" to 3/4" Sweat.

LIQUID INDICATORS



With or without seal cap. Flare sizes 1/4" to 3/4"; sweat sizes 1/4" to 3/4". On 1/4" Sweat to 1 1/2" entire upper assembly may be removed as a unit to facilitate soldering of refrigerant lines to connections.

★ Refrigeration—Food Preservation and National Defense are Synonymous ★

DEHYDRATORS



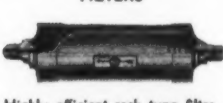
Silica-Gel or Activated Alumina. Refillable and non-refillable. 1/4" to 3/4"; 1/4" to 3/4" S.H.P.; 2 to 60 cubic inches.

MANIFOLDS



With packless or seal cap valves. Two to six valves 1/4" to 3/4" valves, with or without end fittings. Sweat or flare.

FILTERS



Highly efficient sock type filter. Sizes 1/4" SAE to 3/4" SAE. One to five horsepower.

★ Don't take chances with the Nation's Health—do the best job possible ★

FITTINGS



Unions, adaptors, tees, crosses, caps, etc. 1/4" through 1".

HEAT EXCHANGERS



Unique design gives highest capacity per unit size. Sweat or flare connections. 4200 to 9725 BTU per hour.

FLARE NUTS



Brass and steel. Long and frost proof. Forged and bar stock.

★ For complete details—see your Jobber or write for catalog ★

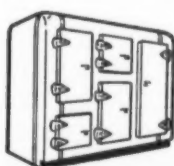
SUPERIOR VALVE & FITTINGS CO.
★ PITTSBURGH ★ PENNSYLVANIA ★



Refrigeration in an Army Camp

SAFEGUARDS THE SOLDIER'S HEALTH—

ADDS ZEST TO HIS VICTUALS



Even the smallest refrigerators in the above are commercial size

EVERY training camp is a tremendous market for refrigeration equipment. Each can be compared to a city of up to 30,000 population and its commercial refrigeration requirements are about as great. You can serve this market and at the same time be sure your equipment functions at its best by using Minneapolis-Honeywell Refrigeration Controls, including the Polartron System of frost free constant cold. Minneapolis-Honeywell Regulator Company, 2807 Fourth Ave. S., Minneapolis, Minn. Branches in 49 principal cities.

MINNEAPOLIS-HONEYWELL REFRIGERATION
THE POLARTRON SYSTEM OF FROST-FREE REFRIGERATION
Control SYSTEMS

What to Check When Electric Motor Does Not Start

Motor Troubles & Their Correction

Editor's Note: Following is part of a section on servicing motors, in a series of articles on motor construction and operation.

By R. A. Fuller,
Industrial Engineering Dept.,
General Electric Co.

Complaint - -

F. Bearing Runs Hot or Excessive Bearing Wear

1. Improper Oil

"Improper oil" is perhaps one of the most common occurrences in motor service. It may be the cause of a complaint that is not recognized as being due to the oil. For example, a worn bearing may be the direct result of improper oil but may be considered as just a condition of normal wear in the motor. Another example is the use of oil of higher viscosity (heavier or stickier) than that which should be used. This

results in heating of the bearing due to the excess amount of energy expended in shearing the oil.

For average indoor temperatures a good grade of mineral oil should be used having a viscosity of 250 to 350 seconds Saybolt at 100° F. However, oil with a viscosity of 150 to 200 second Saybolt at 100° F. may be used for direct connected motors of speeds from 1500 to 3600 r.p.m. and this may give lower bearing temperatures. (The above viscosities correspond respectively to SAE No. 20 and SAE No. 10.) Turbine oil should be used in preference to automobile oil. Reputable oil suppliers will be able to furnish suitable oil from the above description.

The viscosity of oil increases as the temperature decreases. Special low temperature applications of motors may, therefore, require lower viscosity oils than those covered above.

2. Insufficient Oil

"Insufficient oil" leads to a dry bearing which then burns out. On fractional horsepower motors, the lubrication instructions of one manufacturer read essentially as follows: "Motors with wool-packed bearings are oiled at the factory and, for normal service, should not need re-oiling during the first year. For continuous operation (24 hours a

day) or other special conditions, consult the manufacturer. Re-oil for normal service with 30 to 70 drops of a good light (SAE-20) or medium (SAE-30) mineral lubricating oil at the end of the first year and each 1,000 hours of service thereafter. The amount of oil to be added depends on the size and speed of the motor, temperature, and other conditions of service. Overoiling is as undesirable as underoiling."

Motors of one horsepower and above are generally equipped with oil filler gauges. With the motor stopped these should be kept approximately three-quarters full.

3. Excessive Belt Tension

"Excessive belt tension" may cause short belt life, bearing wear, or heating. For V-belts approximately 10 pounds pressure on the top of the belt midway between the pulleys should give a deflection of approximately one-half inch for short center drives and three-quarters of an inch for longer belts. New belts may be installed somewhat tighter to allow for the stretch obtained in the first few days of operation.

4. Excessive End Thrust on Motor Bearings

"Excessive end thrust on motor bearings" may result in their heating, wearing, or burning out. End thrust problems are seldom experienced by the field service man, being more of a problem for the equipment designers. In case end thrust trouble is experienced it may be possible to groove the bearing so

Where To Oil Motor

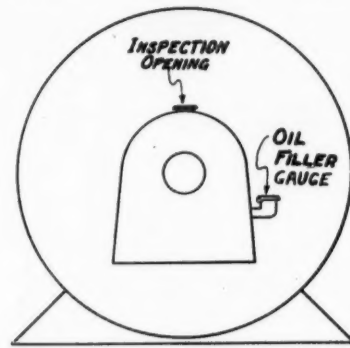


Fig. 48—1 hp. and larger motors must usually be oiled by the installer. Note location of gauge and inspection opening.

that more oil is fed to the thrust surface. Other corrective measures are to reduce the end thrust or to install a ball bearing motor, or some other type having high thrust capacity.

5. Dirty Oil

"Dirty oil" causes abrasion, heat, and wear in a motor bearing. In a waste packed bearing the waste acts as a filter so that the oil reaching the bearing surfaces is relatively clean. The waste, however, tends to become clogged with the dirt reducing the effectiveness of the capillary action. It is therefore good practice, when the oil is found to be dirty, to drain the oil out of the bearing and refill it with clean oil. When oil becomes dirty within a short time after new oil has been put in the bearing, this tends to be a sign that the bearing is wearing, and possible causes of this should be investigated. Dirt may also get into the bearings if the air around the motor is dirty or through some fault in the manufacture of the motor.

6. Oil not Getting to the Bearing

"Oil not getting to the bearing," in an oil ring bearing, may be caused by failure of the oil ring to rotate. The oil ring may become stuck in shipment so that it will not turn when the equipment is first started up. This can be corrected by poking the ring lightly through the oil ring inspection opening (see Fig. 48) in the top of the bearing, with a screwdriver or a piece of wire. Sticking of the oil ring should occur only when the equipment is first started up after installation and, with modern construction, should be an extremely rare occurrence.

Waste packed bearings seldom fail to get the oil to the bearing. If this trouble is experienced it may be due to failure of the waste to touch the surface of the shaft. This can be corrected by pushing the waste down against the shaft and checking that the spring, which presses the waste against the shaft, is exerting adequate pressure.

A glaze may develop on the surface of the waste, where it presses against the shaft, thus preventing good transfer of the oil from the waste to the shaft. This can be corrected by picking up the waste and rearranging it.

Motors which have not been operated for a long time may develop a coating, like varnish, on the waste so that the capillary action is seriously reduced. Packing with new waste may be necessary—using waste that is recommended for motor bearings. Picking up and rearranging of the old waste may prove satisfactory but new waste is recommended.

McWilliams Joins Navy

ATLANTA—G. L. McWilliams left his position as commercial senior salesman of the Georgia Power Co. here to accept a commission as lieutenant in the U. S. Navy May 6.

Credit on Service Work Cancelled by Glendale Company

GLENDAL, Calif. — The Tom Lawson Co., major appliance dealer here, has just adopted a "no credit" policy on service work.

"The credit proposition has always been a headache as far as service work was concerned," says Store Manager L. D. Shormann. "We feel that now's the time to stop it."

"Like most other established appliance houses, we have more service than we can keep up with. Therefore, there's no reason to put questionable money on the books."

"We feel the change is going to have a permanent beneficial effect by educating people not to expect credit on service. We find that many people who are good pay on merchandise fail to meet open account obligations on service. They conveniently find something wrong with the job if time is allowed to elapse."

"The psychology is wrong in selling service on credit. It's the old story of a person disliking to pay for the proverbial dead horse. The service isn't something tangible. And, maybe by the time the customer gets ready to pay the bill, something else has gone wrong with the equipment. It's easy to blame failures on the first job. Therefore, we don't plan to go back to credit on service even after the war is over."

New Service Firm Opens in Modesto, Calif.

MODESTO, Calif.—A new commercial and domestic refrigeration service firm opened here in February, titled I-C Refrigerator Service Co. The new office, located at 606 Eye St., is the first of several planned service organizations in this area, and was opened by William Imfeld and Paul Cloutier



Industry at war is finding more and more uses for refrigeration and conditioned air. That means there's plenty of sales and service opportunities for men who'll go out and scratch for them.

Gilmer Belts can help you . . . for their strength and stamina make Gilmer Belts a "natural," wherever smooth, dependable pulling power is desired. Order through your jobber . . . he can fill your requirements promptly.

L. H. GILMER COMPANY
Tacony, Philadelphia, Pa.

PURO ELECTRIC WATER COOLERS

PHONE
SPRING
7-
1800

Different models available for the various requirements of government agencies and war production plants.

PURO FILTER CORP.
440 Lafayette St., New York

DRINKING WATER SPECIALISTS FOR 40 YEARS.



THREE OFFERS AND A PROPOSAL



FIRST OFFER: If you operate any kind of equipment made of aluminum and you are baffled in any way in maintaining it in top condition—give us the facts, and we will rush you our recommendations.



SECOND OFFER: If you are making anything whatsoever out of aluminum, and are stumped in any way in setting up the best methods of fabricating it—give us the facts, and we will see that you get all the know-how in our power.



THIRD OFFER: If you have joined the host of those who believe that industry must even now be planning the new products that will make jobs when this thing is finally over; if you are letting your imagination soar: Won't you ask us to help you engineer it down to earth with all the up-to-date facts about Alcoa Aluminum, plus some of the very practical dreams we have been dreaming?

AND THE PROPOSAL: Do some personal Imagineering, right now, for the sake of your own personal tomorrow.

We have been talking Imagineering for some months largely in terms of the future. And in terms of industry: But here is the personal slant:



Thirty billion dollars is loose in the country. It is the gap between what is available for spending and what is available for personal purchases. Each of us has a sliver of that chunk of excess purchasing power.

If we put it into War Bonds, we are told that it will both finance the war, and avoid inflation. We sometimes forget that it will also finance ourselves, as users of goods, to buy the new products we are all readying, as makers of goods. Buying tomorrow, today, is patriotism and sense—business sense.

Aluminum Company of America, 1975 Gulf Bldg., Pittsburgh, Pa.

ALCOA ALUMINUM



★
SO MUCH
SO SOON
★

Oregon College Researchers Offer Data On 'Most Useful' Farm Refrigerator

'Two Compartment' Type Found Most Popular

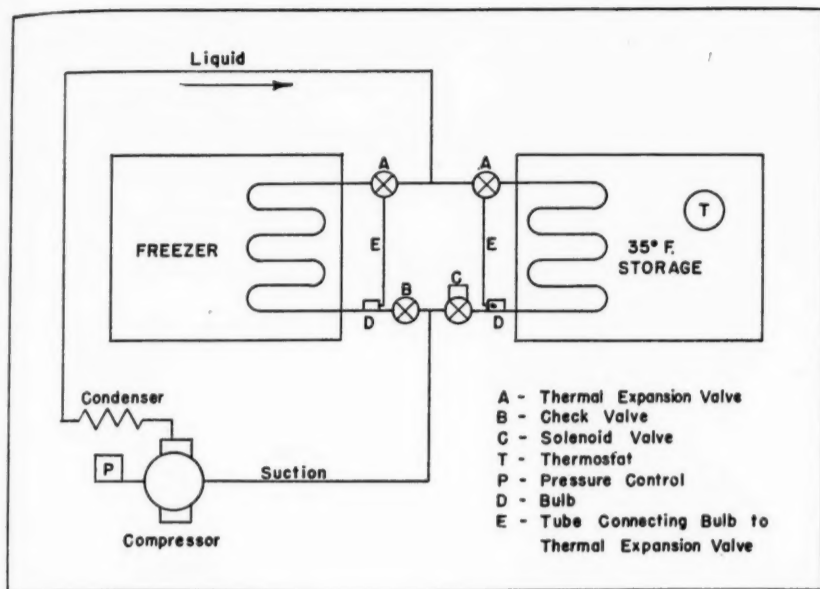


Diagram shows refrigeration system and refrigerant and temperature control hookups for the "most useful" farm refrigeration system described in an Oregon State College bulletin.

CORVALLIS, Ore. — The farm freezers that are most popular in the Pacific Northwest appear to be those of a size in which the farmer can chill and age meat after butchering, before freezing, or it may be of the two-compartment type with both 0° F. and 35° F. storage facilities.

In a bulletin issued by Oregon State College Agricultural Experiment Station, W. H. Martin, professor of heat engineering, and F. E. Price, agricultural engineer, show a summary of estimated cost of materials and equipment for a farm freezer plant, with 50 cu. ft. storage at 0° F., and 150 cu. ft. storage at 35° F., as follows, not including the cost of installation of the refrigerating equipment mentioned:

Compressor, including pressure control switch	\$175.00
Coil for freezer	60.00
Coil for 35° room	35.00
High pressure cutout	7.50
2 thermo valves	15.00
1 check valve	3.00
1 pressure regulating valve	8.00
2 filters	12.00
1 thermostat	5.00
4 shutoff valves	12.00
1 solenoid snap action switch	15.00
2 special doors for freezer	120.00
Structure (incl. insulation and shavings)	100.00
Total estimated cost (to vary as prices change)	\$567.50

The prices given were those in effect on the Pacific Coast when apparatus and materials as mentioned were still obtainable without getting a priority.

A diagram, showing the refrigeration lines and controls recommended in the bulletin, is reproduced in the figure above.

The cooling surface installed in the freezer compartment consists of a bare coil, usually 5/8 inch or 3/4 inch tubing. The effectiveness of such a coil remains more nearly constant as frost accumulates and frequent defrosting is not necessary. The amount of coil surface in the freezer compartment should be sufficient to absorb the maximum heat that must be taken up in this compartment per unit time with a difference between compartment temperature and coil temperature not greater than 15° F.

The surface installed in the 35° space can be bare coil, finned surface, or a blower coil. The performance of any one of the three is satisfactory provided the proper size is selected. The choice can be based on cost.

The allowable average temperature differential should not be more than 10° F., if excessive drying of products in storage is to be avoided. The design and arrangement of the coil can be left to manufacturers' recommendations. All reputable manufacturers are prepared to state the conditions under which their own product will perform best.

For example, let us suppose that a finned coil is desired that will absorb 2,000 B.t.u. per hour when the temperature difference is 13° F. A certain manufacturer has a unit having a rated capacity of 2,080 B.t.u. per hour under these conditions and it is the one to be selected.

In buying coils for the refrigeration rooms the following conditions and requirements should be specified:

1. Room temperature to be maintained.
2. Not greater than 15° F. difference between coil and freezer room temperature.
3. Bare tubing only allowed in freezer room.
4. Inside dimensions of room and thickness and kind of insulation.
5. Maximum amount of product to be cooled or frozen per 16 hour period.

For Defense

CORDLEY

INDUSTRIAL

WATER COOLERS

CORDLEY & HAYES

452 FOURTH AVE.

NEW YORK

Worth looking for

THE sure way to get gauges and dial thermometers that will meet today's heavier responsibilities is to look for the name MARSH. In the first place Marsh Instruments offer you every measure of accuracy and stamina that can be packed into a case, because Marsh has the know-how that comes from 75 years of gauge making. But that isn't the only reason. Beyond this basic perfection, Marsh alone offers the Marsh "Recalibrator", the only real defense against the jars and jolts of hard service for years to come.

The "Recalibrator" is available in all Marsh Gauges, standard in Marsh Dial Thermometers. It is typical of the many refinements you will find throughout the broad Marsh line. Write for the big refrigeration catalog.

JAS. P. MARSH CORPORATION
2067 Southport Ave., Chicago, Ill.

MARSH

Refrigeration Instruments



Any gauge can be rough-handled out of adjustment. However, if it's a Marsh "Recalibrator" Gauge, the twist of a screwdriver re-establishes the proper relation between the bourdon tube and the gauge movement—makes the gauge accurate again at every point on the dial.

Coolers Up Capacity Of Egg Drying Plant

CRETE, Neb.—Three new coolers are now being constructed at the new Fairmont Creamery Co.'s egg-drying plant here to double the plant's storage capacity to 40,000 cases of eggs, G. E. Darrington, manager, said.

With a capacity of 740 lbs. of eggs an hour, the drier is expected to run 20 to 22 hours daily, resulting in 1,500 cases of eggs being broken each day. Because egg production falls off in certain seasons, it is necessary to store some eggs so that the drier may run at full capacity the year around, Mr. Darrington explained.

During the season when the chickens reach the peak of production, extra eggs will be broken, frozen, and stored for future drying.

Refrigeration Tax In April Showed Drop

WASHINGTON, D. C.—Excise tax collections on mechanical refrigerators and air conditioning equipment took a marked drop in April with a total of \$1,272,496.86 as compared with the April, 1941 figure of \$1,645,045.13, Bureau of Internal Revenue statistics released this week disclosed.

However, April's revenue of \$2,113,265.25 on radios, parts, and phonographs was a decided increase over the \$498,510.92 collection in the same month last year.

Phonograph records brought in an additional \$142,941.10.

Chistensen To Direct New Manhattan Branch of York

NEW YORK CITY—Alfred Christensen, formerly sales manager of the York Brooklyn branch, has been named branch manager of a new downtown office in Manhattan, it is announced by the York Ice Machinery Corp.

Mr. Christensen has been associated with York for the past 21 years. The new factory branch, located in the Pershing Square Building at 100 East 42nd St., will provide a central location for York's sales and factory branch service facilities in New York and the Metropolitan area. Designated as the New York branch, this office will replace facilities formerly located in Brooklyn, which property has been sold to the United States Coast Guard.

Worthington Net For Quarter Was Up

HARRISON, N. J.—Worthington Pump & Machinery Corp. reports its net profit for the first quarter this year to total \$877,947, after \$2,014,849 provision for Federal income and excess profits taxes. The profit equals \$2.67 each on 266,735 shares of common stock after dividend requirements on preferred stock.

Before provision for excess profits tax, the net profit for the March quarter in 1941 was \$700,192.

New Wilson & Co. Plant Shows Packers' Wide Use Of Refrigeration Units

BIRMINGHAM, Ala. — The last word in refrigeration equipment is provided for the new branch plant of Wilson & Co., packers, which opened here in May.

Refrigeration for the various cooler and freezer rooms is provided by three Vilter machines, each of 15 tons capacity. These machines are automatically controlled and connected in series so one, two, or three may be operated at a time as the load demands.

The part refrigeration plays in a modern packing plant is illustrated by the number of refrigerated rooms as follows: the freezer room, temperature —10° F.; the beef room large enough to hold 200 head of cattle and where 32° F. is maintained; the dry salt meat cooler at 45°; the sweet pickle cooler with a 35-38° temperature; the egg cooler (large enough to hold five carloads of eggs) with a 38° temperature, and the cheese and produce cooler with a 38° temperature. Other coolers include one used as a wrapping room for smoked meats and a raw stock cooler for sausage materials.

The concern makes its own ice with a Vilter Pak-Icer, this being placed in one of the cooler rooms for added economy of operation.

The battery of smokehouses is air conditioned by means of Niagara blowers with automatic controls by Powers.

I was reading about
UNITY
last night

*... that's the way Joe Mierzwa, a Brunner man for 21 years, puts it.

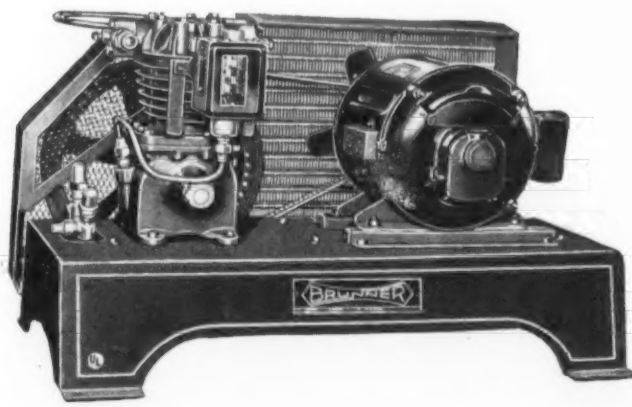
"Last night I was reading about unity... American unity that started in 1776. You'll find it in the Brunner shop and in all American plants. It's real American unity that will keep our country free."

The great army of civilian workers and military men must be fed. And feeding means food storage and proper refrigeration to prevent spoilage. Brunner is doing everything in its power

to meet the demand for its products. It couldn't be done without the unstinted cooperation of the Brunner employees, whose skill and years of experience plus their ability to adapt themselves to ever-changing conditions enables Brunner to produce condensing units that are dependable and economical to operate. Brunner Manufacturing Company, Utica, New York, U. S. A.

BRUNNER
COMMERCIAL REFRIGERATION

* It seems to us that a company is a lot of people working toward a common goal. Out of their personalities, beliefs and purposes company character is formed. Joe Mierzwa, a Brunner man for 21 years, helps to express our character as he talks about unity.



For: TRUCKS, LOCKERS, COOLERS,
COUNTERS, CABINET CONVERSIONS,
use:

KOLD-HOLD PLATES

KOLD-HOLD MFG. CO.
LANSING, MICH., U. S. A.

York Enlarges Washington Office; Lehair in Charge

WASHINGTON, D. C.—York Ice Machinery Corp. has enlarged and increased the facilities of its Washington offices. To be designated as the national sales office, the establishment will operate as a direct factory branch office, located at 215 the Investment Building. M. S. Lehair, formerly manager of the Philadelphia branch, is the new national branch manager.

BE SAFE IN ANY EMERGENCY!

Pulmosan

No. 1600 FUMEGARD

1. High Safety in all refrigerant fumes.
2. Greater working freedom on the job.
3. Long, efficient, low-cost service.

On a feature-for-feature, dollar-for-dollar basis, the No. 1600 Fumegard is the finest face mask ever offered refrigeration men. Its compact design, husky rubber face piece, large, shatter-proof, non-fogging lenses, airtight fit, exhalation valve, scientific absorbents . . . all assure highest working safety and comfort. Furnished complete in carrying case, with extra canister. Order one today.

Pulmosan Safety Equip. Corp.,
Dept. AC, 176 Johnson St., Brooklyn, N. Y.



WRITE TODAY
for literature giving
full details and
new low price.



Preservation of food is as important as the supply of food itself, in order to keep our boys in good health and fighting spirit.

Whether they are stationed in Greenland's icy cold, in Ireland's dampness, in the sweltering blaze of the Pacific, or in the dry heat of the Libyan desert . . . their food and supplies must be protected under those difficult climatic conditions; and Marlo equipment is now doing that.

More than nine-tenths of our production is designed to protect food and supplies for the armed forces.

**"MARLO MEANS HEAT
TRANSFER EQUIPMENT"**

MARLO
COIL COMPANY
ST. LOUIS, MISSOURI

What Refrigeration Manufacturers Are Doing For War Effort and How Much

How some manufacturers of refrigeration and air conditioning equipment and parts are producing for War is shown in the tabulation below. Column I, at the left of this table, lists the regular products of each manufacturer surveyed. Column II lists the ordnance items now being manufactured on prime or sub contracts. Column III illustrates the current percentage of the manufacturer's production devoted to orders (including orders for regular products) being sold to government agencies, and Column IV gives this percentage as of June, 1941. General activity of the manufacturing group (as indicated by total production of all lines) is indicated in Column V, which shows the percentage of increase or decrease in total production for May, 1942 as compared with May, 1941. (Note: This tabulation covers only a part of the industry.)

		III June, 1942 % to Govt.	IV June, 1941 % to Govt.	V Increase or Decrease in Total May Production 1942 vs. 1941
I—Regular Products Manufactured	II—Ordnance Items Manufactured			
Expansion and Float Valves	Hydraulic Valve Mechanisms, Aircraft Carburetor Parts	88%	15%	25%+
Walk-in Coolers, Beer Dispensers	Shell Cases, Plane Parts	99%	0	50%+
Commercial & Air Conditioning Coils	Low Temperature Aircraft Instrument Testing Equipment	100%	0	.....
Industrial Water Coolers	Same Plus Plastic Army Water Bag Faucets	90%+	.....	.....
Complete Line Commercial and Air Conditioning Equipment	Industrial Processing Coolers, Food Production & Preservation Items	98%+	51%	.....
Milk Coolers	Grinding and Quenching Oil Coolers, Aircraft Test Tanks, Army Coach Frames	100%	2%	102%+
Vacuum Cold Plates	Food Trailers, Refrigerated Boxes, Oil, Rivet Coolers, Ship Galley Equipment	20%	50%	3.7%+
Rubber Door Gaskets	Same for Special Coolers, Plus Waterproof Light Hoods	20%	.....	20%+
Domestic Refrigerators, Low Temperature Boxes, Beer Coolers	Low Temperature Aircraft Parts Coolers, Plasma Coolers, Mortuary Units	70%	30%	30%+
Liquid Line Controls	Same	80%	15%	—30%
Complete Line Commercial & Air Conditioning Condensing Units	Spot Welding Coolers, Special Air Conditioning Apparatus	100%	.....	38%+
Fittings, Valves, Dehydrators	Aircraft & Transmission Parts	99%	52%	50%+
Display Cases, Coolers, Reach-ins	Special Walk-in-Coolers	30%	20%	0%
Display Cases, Coolers, Reach-ins	Special Walk-in-Coolers	80%	10%	40%+
Display Cases, Coolers, Reach-ins	Food, Blood, Mortuary Coolers, Rivet Annealers, Test Cabinets	90%	20%	50%+
Refrigerants	Same Plus Chemical Fire Extinguishers	75%	25%	.....
Milk Coolers; Cabinets & Freezers	Ice Makers, X-Ray Tanks, Walk-ins	50%	1.1%	40.2%+
Commercial & Air Conditioning Coils, Low Temperature Units	Aircraft Components, Marine Heaters, High Pressure Steam Coils	100%	80%	60%+
Solenoid & Expansion Valves	Same Plus Army Compass Assemblies	80%	10%	20%+
Oil Separators, Valves, Dehydrators	Armament Parts, Special Valves	75%	50%	.....
Beer Dispensers	Ice Chests, Bomb Boosters	95%	0	—25%
Domestic Cabinets, Complete Refrigerators	Special Ordnance Items	100%	0	—40%
Commercial & Air Conditioning Coils, Condensers, Units	Machine Tool Oil Coolers, Army & Navy Refrigeration	90%	100%	50%+
Solenoid, Expansion, Water, and Suction Valves	Same Plus Torpedo Parts & Aircraft Valves	100%	4%	60%+
Household Refrigerators, Milk and Beverage Coolers, Display Cases	Binoculars, Gun Fire Control Devices, Radio Apparatus, Chilled Water Coolers, Army Refrigeration	100%	10%	10%+
Household and Commercial Refrigerators, Ice Cream Cabinets, Beverage Coolers	Army Trailers, Propellers, Binoculars, Airplane Engines, Flying Boats	100%	0%	.....
Household & Commercial Cabinets	Government Contracts of Restricted Nature	100%	.....	.....
Coils, Valves, Controls, Product Coolers	Same Plus Munitions, Aircraft Parts	99.5%	75%	.....
Dryers, Valves, Strainers	Same Line Plus Special Valves	95%	40%	50%+
Display Cases, Coolers	Marine Ventilator Hoods	.....	.....	.....
Valves, Fittings, Tools, and Dehydrators	Parts for Airplanes, Tanks, Chemical Warfare, Navy & Motor Transport	100%	66 2/3%	12%+
Refrigerator Cabinets	Same for Army, Navy & Maritime Commission Plus Aircraft Flares, Floats	93%	.....	.....
Commercial Refrigerators, Beverage Coolers	Reach-in Refrigerators, Sectional Coolers, Tent Poles, Demolition Bombs	90%	4%	25%+
Automatic Switches and Controls	Controls for Rivet Annealing Machines, Army Equipment, Etc.	80%	.....	.....
Electric Control Systems	Special Army Applications	92%	.....	.....
Valves and Fittings	Drill Projectiles, Aircraft Parts, Turret Parts, Tank Parts	73%	.....	.....
Fittings	Aircraft & Tank Fittings & Parts	85%	.....	.....
Coils and Condensers	Helmets & Liners; Flame Traps; Lubricators, Linking Machines	76%	.....	.....

Distributor Shifts To War by Buying Farm Implement Co.

HARTFORD, Conn.—An example of one way in which a major distributor of electrical appliances is converting its facilities to direct usefulness in the war effort was revealed here June 16 with the announcement by Orrin P. Kilbourn, president of Orkil, Inc., of this city, that his firm has purchased the plant and assets of the Cutaway Harrow Co., pioneer farm implement firm of Higganum, for immediate conversion to war production.

WANTED WAR WORK

Formerly known as the Orkil Electric Co., the local firm is distributor of General Electric appliances for Connecticut and Western Massachusetts.

"Because we were engaged almost wholly in an activity nonessential to the war effort," Mr. Kilbourn said, in announcing the acquisition of the Cutaway Harrow plant, "the directors of Orkil for many months past have wanted to become identified with an industry where a contribution of direct value to the nation at this time could be made. Obviously, a merchandising organization such as ours will prove to be most valuable when working in conjunction with a plant which produces the tools of war."

TO CONVERT PLANT

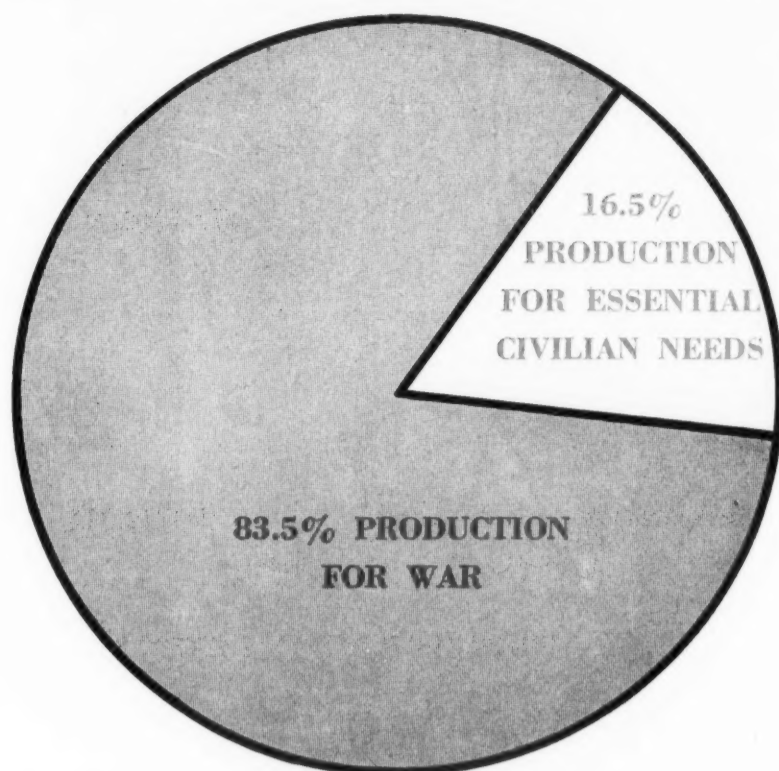
"Because the Cutaway Harrow plant can be converted to production of the implements of war within a comparatively short time," he added, "we believe that by combining its splendid plant facilities with the

HOW MANUFACTURERS ARE PRODUCING FOR WAR



JUNE 1, 1941

The two charts above show the progress during one year taken by manufacturers in the refrigeration and air conditioning industry in increasing their production for war. Figures are not representative of the entire



JUNE 1, 1942

refrigeration and air conditioning industry, but they do represent a fairly large segment of the industry, surveyed recently by Air Conditioning & Refrigeration News. More details of the survey appear on page 20.

merchandising resources of Orkil, both will be immeasurably better equipped to serve the nation."

Cutaway Harrow Co., which will be known as the Cutaway Harrow Division of Orkil, Inc., is one of the oldest farm implement manufactur-

ing plants in New England, having been established by the late George M. Clark in 1865.

General offices of Orkil, Inc., remain at 1015 Asylum St., Hartford, with offices of the Cutaway Harrow Division at the Higganum plant.



Behind the ordnance flag

THE workers at Imperial are proud of the Army Ordnance Flag that hangs at the main entrance of the plant . . . proud because this flag serves as a constant reminder of the fact that every Imperial worker is serving on the industrial production front that is so important in mechanized warfare.

The Imperial fittings, the tools and other products that are so familiar to men of the refrigeration and air conditioning industry are now going into

the production of the machinery of war whether it be tanks, planes, ships or machine tools.

But along with the work for Ordnance and other branches of service, every effort is being made to help the refrigeration jobbers and service men in their emergency service work. Every effort is also being made to provide the fittings and other parts for the many new applications of refrigeration and air conditioning that are developing as a result of war work.

THE IMPERIAL BRASS MFG. CO., 565 South Racine Avenue, Chicago, Illinois

IMPERIAL Refrigeration and Air Conditioning Products

STRAINERS • DEHYDRATORS • VALVES • FITTINGS • FLOATS • CHARGING LINES
TOOLS FOR CUTTING, FLARING, BENDING, COILING, PINCH-OFF AND SWEDGING



FACING THE OBJECTIVE WITH CONFIDENCE

Confidence is half the battle. It was confidence that caused the Allied Nations to stem numerically superior enemy forces on many fronts when TIME was the only fruit of Victory. It is confidence in the eventual outcome of the conflict that makes each Allied objective seem very much worth-while today.

It is difficult to have such faith on an empty stomach. Good food, and plenty of it, is the background of determination—and to keep food good and healthful on many fighting fronts, under many different climatical conditions, the Army, Navy and Marine Corps have installed the special protection of nationally known refrigeration plants equipped with dependable UNIVERSAL COOLER REFRIGERATION UNITS.

Universal Cooler Corporation, Marion, Ohio, U. S. A.



HOME OF

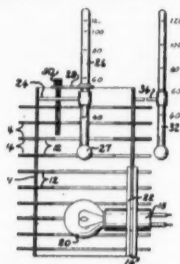
Universal Cooler REFRIGERATION UNITS

AUTOMATIC REFRIGERATION SINCE 1922
Universal Cooler of Canada Ltd., Brantford, Ontario

PATENTS

Week of June 9

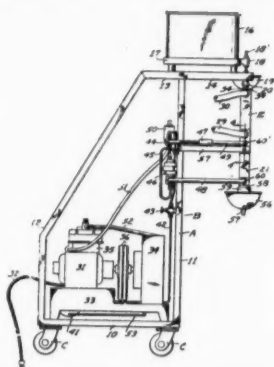
2,285,481. **AIR CONDITIONING.** George V. Woodling, Cleveland, Ohio, assignor to General Motors Corp., a corporation of Delaware. Application Jan. 4, 1938, Serial No. 183,336. 2 Claims. (Cl. 73-336.)



1. A psychrometric instrument comprising in combination, a temperature responsive element, a heating element, and a chimney element enclosing said elements, said chimney element being provided with external heat conducting fins, said elements being so proportioned and arranged that said temperature responsive element responds to changes in the effective temperature.

2,285,520. **PORTABLE MILK COOLER.** Harry C. Keyser, Portland, Ore. Application June 30, 1941, Serial No. 400,523. 2 Claims. (Cl. 62-141.)

1. In a milk cooler of the character described, a frame, said frame having a top extending horizontally beyond the front of said frame so as to overhang said front, a cooling coil element removably suspended from the overhanging portion of said top and spaced from said front, said cooling coil element having



horizontally corrugated surfaces for its two faces with cooling pipes located therebetween, a milk-receiving tank supported above said top, a distributing trough removably supported above said cooling coil element and adapted to distribute milk over the surfaces of said cooling coil element at the top, said milk-receiving tank having a spout discharging into said distributing trough, a collecting trough removably suspended from the bottom of said cooling coil element, a mechanical refrigerating unit mounted in said frame, means connected with said refrigerating unit for circulating refrigerant in said cooling coil element, said means including a pressure switch and an expansion valve and an automatic control for regulating the delivery of refrigerant to said cooling coil element in accordance with the milk cooling required, whereby, when milk is permitted to pass from said receiving tank into said distributing trough and thence to flow downwardly over the corrugated surfaces of said cooling coil element, the milk will be cooled by passing over said cooling coil element before being collected in said bottom collecting trough, and whereby said pressure switch and expansion valve and control means will insure predetermined amount of cooling of the milk but prevent unnecessary cooling of said cooling coil element, supporting wheels mounted on the base of said

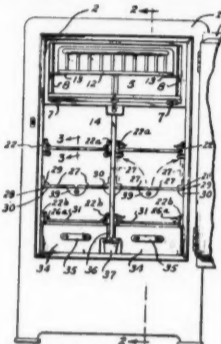
frame to permit said cooler to be moved easily about, a discharge spout in said bottom collecting trough, said cooler being of proper size and height to permit said collecting trough to be supported at a height from the ground slightly in excess of the height of a conventional size milk can, whereby said cooler can be moved into and out of position with respect to the milk can without requiring any unnecessary moving of the milk can.

2,285,605. **ICE TRAY.** James H. Miner, Meridian, Miss. Application Oct. 27, 1939, Serial No. 301,662. 8 Claims. (Cl. 62-108.5.)



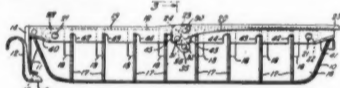
1. In combination an ice tray, a grid therein in two sections, free to move apart laterally and free to have relative movement lengthwise, each section being composed of a bar or partition extending lengthwise of the tray and adjacent the corresponding bar of the other section, laterally extending fins on said bars and means permanently pivoted on a part of the organization and having movement relative thereto, said means entering between, contacting with and pressing the grid sections laterally apart when operated, said permanently mounted means having a handle permanently attached thereto and accessible for manual operation, substantially as described.

2,285,701. **REFRIGERATOR.** Charles E. D'Olive and Roland H. Money, Cincinnati, Ohio, assignors to The Crosley Corp., Cincinnati, Ohio, a corporation of Ohio. Application Aug. 2, 1939, Serial No. 288,002. 7 Claims. (Cl. 62-116.)



1. In a refrigerator having a primary refrigeration system including an evaporator, an insulated compartment in which said evaporator is located, a closed secondary system including a condenser arranged in thermal contact with the primary system evaporator, and an evaporator located in the main compartment within the refrigerator outside of said insulated compartment, said evaporator forming a vertically extending medial wall in said main compartment, and having a lower end extending beyond said main compartment and insulated therefrom, and moist compartments arranged alongside of said extension of said evaporator.

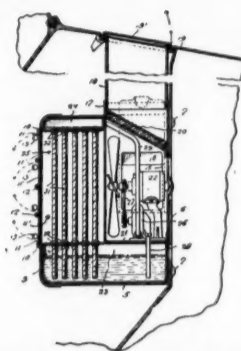
2,285,712. **FREEZING TRAY.** Harvey D. Geyer and Frederick W. Sampson, Dayton, Ohio, assignors to General Motors Corp., Detroit, Mich., a corporation of Delaware. Application May 12, 1938, Serial No. 207,437. 14 Claims. (Cl. 62-108.5.)



1. In a freezing tray, a container pan, and a partitioning grid within said pan,

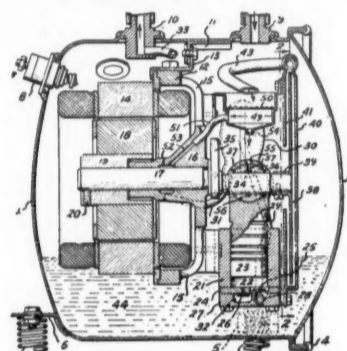
said grid comprising: a longitudinal partitioning wall, a series of cross walls extending from side to side of said grid and cooperating with said longitudinal wall to form ice block compartments, said cross walls being movable relative to said longitudinal wall, and force-multiplying means for moving some of said cross walls from their freezing position toward one end and some of said cross walls from their freezing position toward the opposite end of said grid to facilitate the removal of the frozen ice blocks from said grid.

2,285,725. **AIR CONDITIONER.** George A. Kneeder, Vernon, Tex. Application May 6, 1940, Serial No. 333,645. 4 Claims. (Cl. 261-30.)



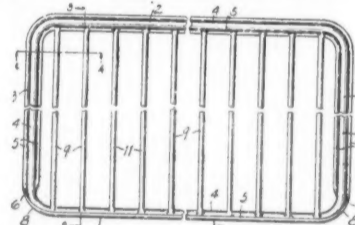
1. In combination with the dash board of a motor vehicle, a casing secured to the dash board at the rear of the latter and having an air inlet opening in the front portion of the same, said casing being open at the rear, an air circulating fan mounted in the front portion of the casing and adapted to draw air inwardly through said air inlet and to discharge the same rearwardly from the casing, an air conditioning unit separate from the fan and its mounting and removably fitted in the rear portion of the casing and having air treating elements disposed in the path of the air from said fan, said unit including upper and lower tanks connected by rigid air-treating elements, and a cover removably fitted on the rear of the casing and removably retaining said air conditioning unit in the casing.

2,285,754. **REFRIGERATION MECHANISM.** Roland H. Money, Cincinnati, Ohio, assignor to The Crosley Corp., Cincinnati, Ohio, a corporation of Ohio. Application Feb. 1, 1939, Serial No. 254,065. 6 Claims. (Cl. 230-58.)



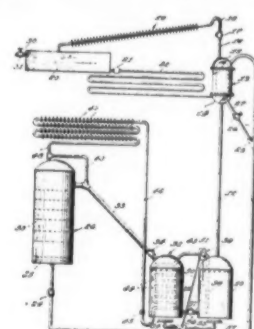
1. In a refrigerating apparatus a dome, a motor and compressor in said dome, a rotating disc, a cover for a portion of said disc, said cover having parts substantially conforming to but inter-spaced from the periphery and opposite side portions of said disc, a body of lubricant in said dome, said disc extending into said lubricant whereby upon rotation of said disc lubricant is forced into said cover under pressure, and means for delivering lubricant from said cover to parts of said mechanism to be lubricated.

2,285,764. **SHELF OR RACK FOR REFRIGERATORS, OVENS, AND THE LIKE.** Leonard A. Young, Detroit, Mich. Application Sept. 19, 1940, Serial No. 357,412. 15 Claims. (Cl. 211-153.)



5. The combination of a border frame comprising integral front, rear, and end members substantially flat on one side, the opposite side being of curved section and having a shoulder, the rear and end members of the frame being disposed with the flat sides thereof facing downwardly and the front member being disposed with the flat side thereof facing forwardly, there being quarter twists at the front ends of the end members, the flat face of the front member being extended around the front corners of the frame.

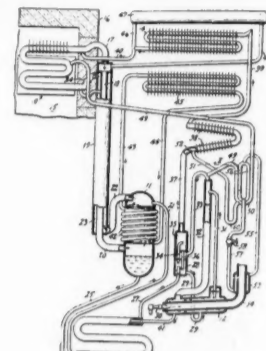
2,285,788. **REFRIGERATING APPARATUS.** Lewis Green Woodson, Birmingham, Ala. Application Aug. 2, 1940, Serial No. 349,779. 4 Claims. (Cl. 62-5.)



1. In a refrigerating apparatus of the intermittent absorption type, a generator, means for heating said generator, an absorber, a closed tank intermediate said generator and said absorber, a pipe hav-

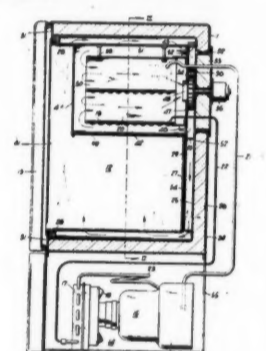
ing a one-way valve therein connecting said absorber to said intermediate tank to permit flow of strong liquid to said intermediate tank, a conduit extending from said generator into heat exchange relationship with the strong liquid in said intermediate tank, means responsive to a predetermined maximum temperature of the liquid in said generator to render inactive said generator heating means and to permit flow of weak liquid from said generator through said conduit to thereby gradually elevate the temperature and consequent pressure of the strong liquid in said intermediate tank, means for conducting weak liquid from said conduit to said absorber, and a second pipe having a one-way valve therein connecting said intermediate tank with said generator to permit flow of strong liquid to said generator upon decrease of pressure therein.

2,285,884. **REFRIGERATION.** Carl T. Ashby, Evansville, Ind., assignor to Servco, Inc., New York, N. Y., a corporation of Delaware. Application Nov. 27, 1939, Serial No. 306,258. 15 Claims. (Cl. 62-119.5.)



1. A refrigeration system including a source of vaporous fluid, a condenser, a cooling element, a conduit including a liquid trap for conducting vapor from said source to said cooling element, said trap being arranged to receive liquid, means to remove liquid from said trap to permit flow of vapor through said conduit to said cooling element, and means embodied in said system capable of functioning immediately when sufficient liquid is removed from said trap to cause all of the vapor from said source to flow through said conduit.

2,285,945. **REFRIGERATION APPARATUS.** Theodore W. Bundell, Indianapolis, Ind., assignor to Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., a corporation of Pennsylvania. Application Sept. 20, 1939, Serial No. 295,710. 3 Claims. (Cl. 62-102.)



1. In refrigeration apparatus, the

(Concluded on Page 23, Column 1)

ANSUL

IS Delivering

Ansul is continuing to accept and deliver orders for all Ansul products. We assure our jobbers and their customers that, as far as we can see, for basic reasons, Ansul will continue to do this.

Ansul Chemical Company, Marinette, Wis.

ANSUL METHYL CHLORIDE SULPHUR DIOXIDE

STEEL MEANS VICTORY...

CONSERVE IT... RETURN YOUR EMPTY CYLINDERS!

Thousands of WAGNER MOTORS

ARE NOW GIVING DEPENDABLE SERVICE ON REFRIGERATING AND AIR CONDITIONING EQUIPMENT IN WAR INDUSTRIES, ARMY CANTONMENTS, NAVAL STATIONS, AIR-FIELDS, ON SHIPS, ETC.

Remember — SERVICE FOR THE DURATION IS OF PARAMOUNT IMPORTANCE

In times like these, when many electrical driven equipment manufacturers have converted their plants to the manufacture of victory materials, it is good to know that the motors driving their equipment in the field will not want for service. Wagner's 25 sales and service branches are on the job in all parts of the country to help you keep your products in continuous service, no matter where they are.

There are many good reasons why Wagner motors are in demand for refrigerating and air-conditioning installations in the war industries, army cantonments, naval stations, etc., and here are a few of the many reasons:—(1) Established reputation for efficiency and dependability, (2) Complete line, (3) Quick shipments, (4) Large plant facilities, (5) 50 years of manufacturing experience, (6) Convenient service through 25 branches... six good reasons why Wagner motors are the first choice for war production requirements.



Polyphase Squirrel-Cage Motors 1/6 to 400-hp.

Shaded-Pole Fan Motors 1/125, 1/80, 1/40 and 1/30-hp.

Capacitor-Start Induction-Run Motors 1/8 to 3/4-hp.

Repulsion-Start Induction Motors 1/8 to 15 hp.

MAIL COUPON TODAY!

Wagner Electric Corporation
6400 Plymouth Avenue, Saint Louis, Mo. U.S.A.

Gentlemen:
Please mail me FREE Bulletins MU-182 and MU-183.
Name _____ Position _____
Firm _____
Address _____
City _____ State _____

Send for DESCRIPTIVE BULLETINS →

MOTORS • TRANSFORMERS • FANS • BRAKES

PAR CHECK THE FEATURES AND YOU'LL AGREE
★ PAR ★
IS TOPS IN REFRIGERATION EQUIPMENT!
Catalog on request

LYNCH MANUFACTURING CORP., DEFIANCE, O.
3 CATALOGS IN 1
HERMETIC UNITS - COMPRESSORS - PARTS
FRIGIDAIRE - KELVINATOR - NORGE - G-E
Complete Line Refrigeration Parts, Tools - Supplies
WRITE FOR YOUR COPY ON YOUR LETTERHEAD
SERVICE PARTS CO.
MELROSE PARK, ILLINOIS

"MOISTURE'S MASTER"
DAVISON'S
SILICA GEL
—USED IN ALL WELL-KNOWN DRYERS
YOUR JOBBER CAN SUPPLY YOU

Established **CURTIS** 1864
REFRIGERATION
Curtis Refrigerating Machine Division
of Curtis Manufacturing Company
1912 Kienlen Ave. St. Louis, Mo.

Specify and Buy **fedders**
REFRIGERATION Products
FEDDERS MFG. CO. BUFFALO, N. Y.

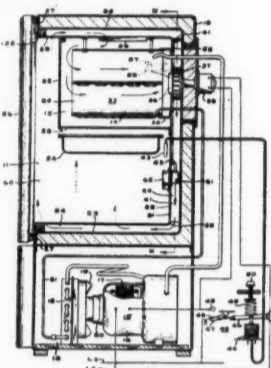
PLATE COILS
Ideal for Counter Display, Salad Pans, Sharp Freezer Service, and Low Temperature Service.
KRAMER-TRENTON CO.
TRENTON, N. J.

Patents (Cont.)

(Concluded from Page 22, Column 5)

combination of a refrigerating unit including a cooling element having inner and outer exposed surfaces and means for circulating refrigerant through the cooling element, a refrigerator cabinet including a liner formed to impose but slight impedance to heat flow and having top, bottom, side, and rear walls forming a food storage compartment, means for substantially isolating the cooling element from the food storage compartment, a shell surrounding the liner and forming a duct system therewith, air circulating means for forcing air through said duct system in contact with said cooling element to cool the food storage compartment by conduction of heat through said liner, said duct system being so arranged that as air leaves the cooling element it is conveyed in contact with the liner while passing down the back, forwardly under the bottom, up both sides, and over the top of the food liner, whereupon it again contacts the cooling element, said cooling element and duct system being so formed that air passing over the cooling element is conveyed first over the outside surfaces of the cooling element and then over the inside surfaces of the cooling element to the air circulating means.

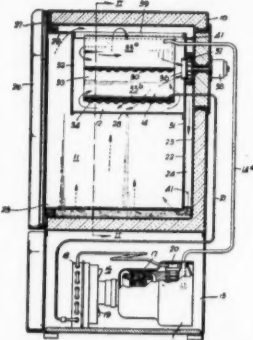
2,285,946. REFRIGERATION APPARATUS. Milton Kalischer, Longmeadow, Mass., assignor to Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., a corporation of Pennsylvania. Application Dec. 30, 1939, Serial No. 311,845. 14 Claims. (Cl. 62-6.)



1. In refrigeration apparatus, the combination of a refrigerator cabinet, a cooling element disposed in the cabinet for cooling and dehumidifying air circulated thereover, a substantially enclosed chamber formed of a material providing a small thermal drop therethrough disposed in the cabinet, a passageway surrounding at least a portion of said chamber for the circulation of said cool and dehumidified air and embodying a relatively high pressure zone and relatively lower pressure zones, said chamber being cooled primarily by the conduction of heat through said material to the air in said passage, whereby a relatively high humidity is maintained in said chamber, means responsive to the humidity in said chamber for establishing a circulation of said dehumidified air from said high-pressure zone of said passage to said chamber and from said chamber to a lower pressure zone of said passage, and means for forcibly effecting said circulation at least part of the time.

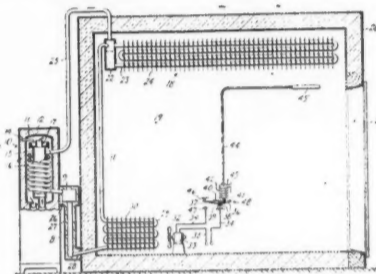
2,285,947. REFRIGERATION APPARATUS. Martin G. Sateron, West Springfield, Mass., assignor to Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., a corporation of Pennsylvania. Application Feb. 21, 1940, Serial No. 320,042. 3 Claims. (Cl. 62-102.)

1. In refrigeration apparatus, the combination of a refrigerating unit including a cooling element and means for circulating refrigerant through the cooling element, a refrigerator cabinet including a



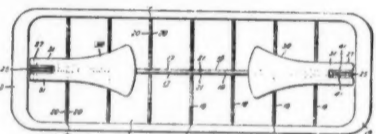
liner having rear, bottom, side, and top walls formed of a material having a low thermal drop therethrough and enclosing a food storage compartment, said food storage compartment having an open front means for substantially isolating the cooling element from the food storage compartment, a duct system surrounding said liner, air circulating means for forcing air through said duct system and over said cooling element to cool the food storage compartment primarily by conduction of heat through said liner, said duct system being arranged so that as air leaves the cooling element it is conveyed first into contact with the entire back wall of the liner, then forwardly toward said open front of the food storage compartment under the bottom of the liner, and up both sides thereof in contact with the liner to the top of the liner whereupon it reenters the cooling element, said duct system being formed in part by baffles which extend across the exterior of the top of the rear wall of the liner and downwardly along the exterior of the vertical edges of the rear wall of the liner to a point adjacent the bottom wall of the liner.

2,286,025. REFRIGERATION. Albert R. Thomas, Evansville, Ind., assignor to Servel, Inc., New York, N. Y., a corporation of Delaware. Application Nov. 22, 1939, Serial No. 305,578. 1 Claim. (Cl. 62-125.)



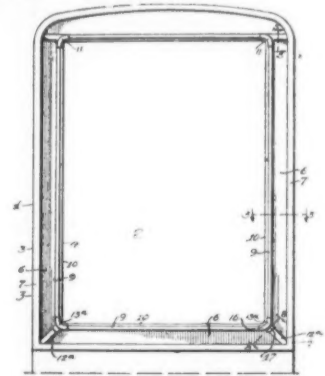
In a refrigerator having a storage compartment, a cooling element, a heat transfer system including an evaporator in the upper part of said compartment, a condenser at a level below that of said evaporator and arranged to be cooled by said cooling element and connected to receive vapor from said evaporator, a second evaporator in the lower part of said compartment connected to receive liquid from said condenser, a conduit for conducting liquid from said second evaporator upward to said first evaporator under the lifting action of vapor formed in said second evaporator, a blower located so as to direct a stream of air in said compartment onto said second evaporator when the blower is in operation, and a thermostat for starting and stopping said blower responsive to change in temperature of air in said compartment.

2,286,080. FREEZING TRAY. Harvey D. Geyer, Dayton, Ohio, assignor to General Motors Corp., Detroit, Mich., a corporation of Delaware. Application May 22, 1936, Serial No. 81,172. 16 Claims. (Cl. 62-108.5.)



1. A freezing tray comprising a container pan and a grid within said pan, said grid comprising: a central reaction member, a stretchable grid portion disposed upon each side of said reaction member and at least partially movable relative thereto, and a lever pivoted upon said reaction member and having an eccentric pivot upon at least one of said grid portions and actuatable to stretch said grid portion relative to said reaction member.

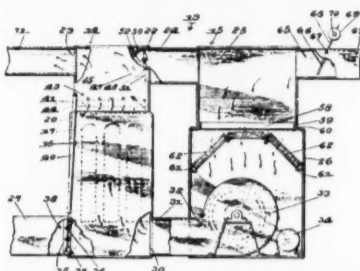
2,286,109. REFRIGERATOR CONSTRUCTION. Theodore W. Randall, Jenkintown, Pa., assignor, by mesne assignments, to Philco Corp., Philadelphia, Pa., a corporation of Pennsylvania. Application July 30, 1940, Serial No. 348,593. 5 Claims. (Cl. 220-9.)



1. In a refrigerator having spaced inner and outer shells, breakerstrip sections closing the space between said shells, and means securing said breakerstrip sections to the shells including trim strips extending along the inner edges of the breakerstrip sections; a clip connecting together and securing the end edge portions of adjacent breakerstrip sections, said clip comprising a breakerstrip engaging portion of substantially H-shape

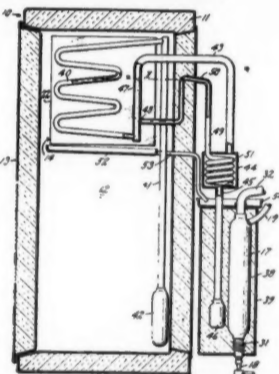
in cross-section along at least a portion of its length inserted between adjacent breakerstrip sections with the end edge portions of the latter engaged in the oppositely facing recesses formed by the H-cross-section of said clip portion, and a yoke portion of inverted channel cross-section shape interlockingly engaged over the trim strips at the inner edges of the breakerstrip sections to secure the clip against displacement from between adjacent breakerstrip sections.

2,286,115. AIR TEMPERING APPARATUS. Jack Fenner Shelton, Memphis, Tenn. Application Sept. 26, 1940. Serial No. 358,551. 3 Claims. (Cl. 98-33.)



1. Air tempering apparatus for a building having a plurality of rooms, air supply registers at approximate ceiling height and return grilles at approximate floor level in each of the rooms, a blower unit and an air tempering unit, an independent plenum chamber embodied in each of the units, a connection between said chambers, an exhaust duct leading from the tempering unit, air supply ducts connecting the registers with the tempering unit plenum chamber, being adapted primarily for the pressure supply of air to said registers, return ducts connecting the grilles with the blower unit plenum chamber, being adapted primarily for the suction return of air, a duct connecting the blower unit with the tempering unit and a multiple damper arrangement including dampers located across the tempering unit, dampers located across the connection between the plenum chambers and dampers located across the exhaust duct, said three sets of dampers being interconnected, means for simultaneously operating the sets of dampers to close off and by-pass the tempering unit and at the same time to open said connection and exhaust duct for a common draft of air from all of the rooms into all of the registers as well as all of the grilles thus to exhaust the air of the rooms from two points through both plenum chambers and out at the exhaust duct.

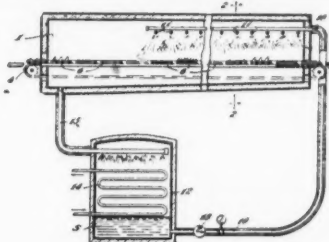
2,286,205. HEAT TRANSFER SYSTEM. Gunnar Grubb, Stockholm, Sweden, assignor, by mesne assignments, to Servel, Inc., New York, N. Y., a corporation of Delaware. Application Sept. 17, 1938. Serial No. 230,401. In Germany, Sept. 30, 1937. 15 Claims. (Cl. 62-5.)



1. A vaporization-condensation heat transfer circuit partly filled with a volatile liquid and including two evaporation members and a common condensation member, trap means in said circuit capable of withholding liquid from both of said evaporation members, said trap means being so constructed and arranged that liquid will flow to one of said evaporation members upon rise of liquid level in said trap means and liquid will flow to the other of said evaporation members upon increase in pressure in said circuit resulting from evaporation of liquid in said one evaporation member, and means for controlling said trap means to raise or lower the level to which liquid must rise therein before flowing to said one evaporation member.

2,286,225. FREEZING PROCESS. Harry A. Moyes, Waban, Mass., assignor, by mesne assignments, to Z Pack Corp., Jersey City, N. J., a corporation of Delaware. Application Nov. 16, 1936. Serial No. 110,964. 2 Claims. (Cl. 99-198.)

2. A process of quick freezing fresh fruits in loose formation, which comprises flowing a refrigerant sugar solution, of which at least substantially half of the total sugar content is levulose, alternately over cooling means to maintain said solution at a quick freezing



temperature of between 2° and 25° F. and over the product to be frozen until said product is substantially frozen, the physical properties of said solution being such that it flows rapidly over said cooling means and over the product and drains rapidly from the surfaces of the said product so as to be continuously replaced by fresh cold solution, with the result that the surface layers of said product are hard frozen almost instantly.

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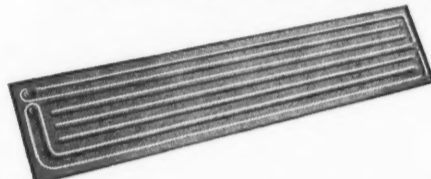
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